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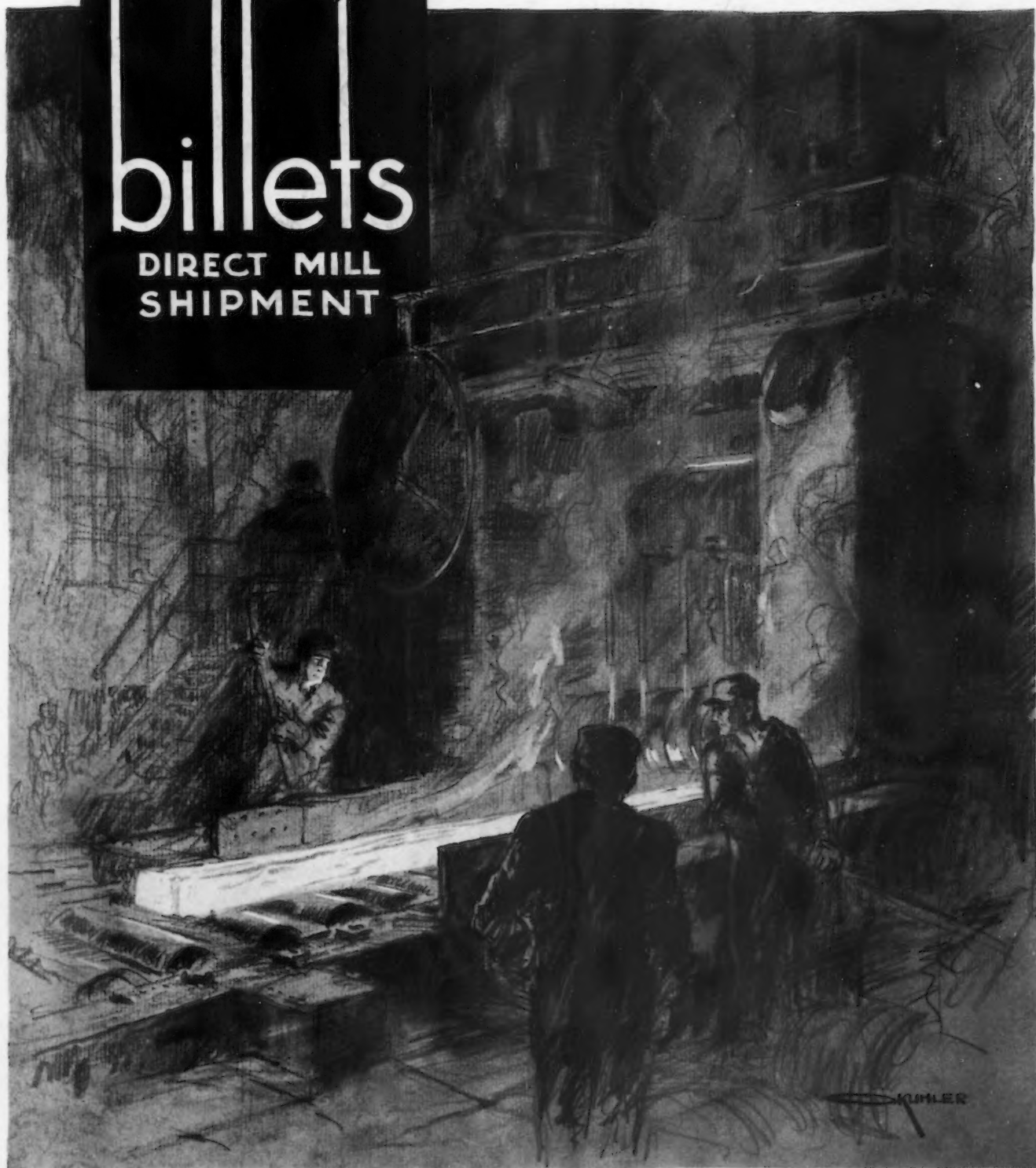
JAN 13 1928

# THE IRON AGE

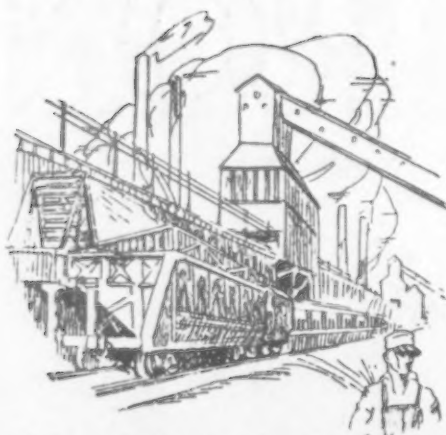
JANUARY 12, 1928

billets

DIRECT MILL  
SHIPMENT



*The* HAUSMAN & WIMMER CO.  
PITTSBURGH NEW YORK DETROIT



# KOPPERS -SERVICE-

The operators of by-product coke plants built by the Koppers Company have the assurance of comprehensive and continuous service by a company closely and permanently identified with by-product practice.—A valuable aid in keeping plants modern and fit.

The sustained interest of the Koppers Construction Company in the plants it builds is the interest of a progressive force in those plants. The scope of its operations, its responsibility for major improvements in the art of by-product coking, the fact that 75 per cent of American coke is made in ovens built by the Koppers Company assure operators of Koppers plants that their requests for service will always be met—and with the best of current practice.

*The*  
**KOPPERS**  
CONSTRUCTION COMPANY  
PITTSBURGH

CHICAGO

NEW YORK





# THE IRON AGE

New York, January 12, 1928

ESTABLISHED 1855

VOL. 121, No. 2

## Better Forgings Produced

## Through Furnace Control

BY E. J. EDWARDS\*

**R**ECOGNIZING that every care must be taken in the manufacture of locomotive forgings, the American Locomotive Co. has built a new forge plant at its Brooks Works, Dunkirk, N. Y. While the production consists of driving axles, engine truck and trailing axles, driving rods, crank pins, piston rods and valve motion work, the shop is completely equipped to produce commercial forgings up to 16 in. in diameter or thickness.

In 1902 a forge plant 80 ft. wide and 400 ft. long was constructed with what was then considered modern equipment. The heating facilities in this shop consisted of eight coal-fired furnaces, each with two or three doors. Over these furnaces were mounted waste heat boilers for generating steam from the hot furnace gases, the steam being used to operate the light hammers then in use. By far the larger tonnage produced in those days consisted of iron forgings; the hammers of the lighter capacity and the coal-fired furnaces were quite satisfactory for the material being forged. But with the advent of locomotives which require forgings of a larger sectional area in straight carbon as well as alloy steel, it was recognized that the heating of such material could not be handled properly in the old furnaces, nor could the proper grain refinement be obtained by hammers of such light capacity.

The new shop, which has been in operation since 1926, is 424 ft. long, 97 ft. wide and 59 ft. 7 in. high to the top of the truss. It is of modern fireproof construction throughout. Special care has been exercised in its design to provide maximum light and ventilation, as is apparent from photographs. It is interesting to note that even in midsummer there is no complaint from the workmen because of the heat. The building is equipped with a 15-ton Shaw electric traveling crane with a 70-ft. span, mounted on a runway 39 ft. from the floor. This crane runway extends outside the shop over a storage yard 150 ft. long for raw materials such

### *Billets Charged in Cool Furnaces and Heating Cycle Controlled by Pyrometers—Handling Equipment Also Features American Locomotive Co. Shop*

as ingots, billets and bar material. A special door in the end of the building permits the crane to bring materials into the shop without difficulty.

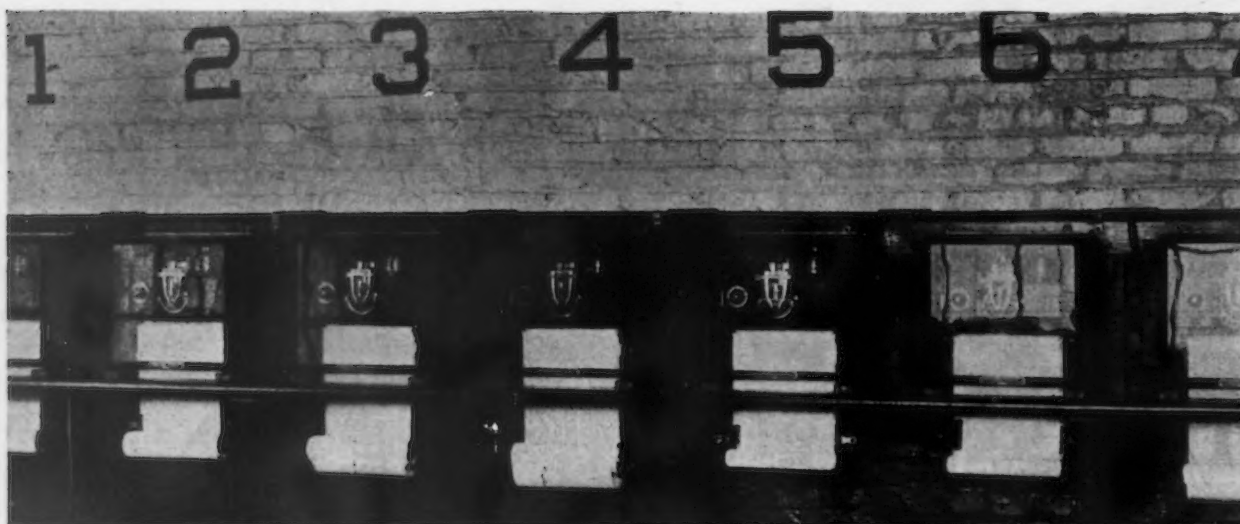
Heating before forging is of vital importance. Steel should not be charged into a hot furnace, as this often causes internal ruptures. This is especially true for the alloys and the higher

carbon steels, and even for medium steel in cold weather. To avoid damage to the billets and to insure complete control over the heating of the steel before forging, six furnaces are installed which operate in two sets of three. In normal operation there are each morning two cool furnaces ready for charging, two hot furnaces containing steel ready for the press and hammer and the remaining two cooling off. These furnaces are of the regenerative type, of Stevens design and oil-fired. The chambers are 8 ft. in depth by 14 ft. in width; the capacity of each is approximately 25 tons of steel. Each furnace is equipped with two charging doors. The flame at no time comes in direct contact with the charge in the furnace.

The above described furnaces are used for the heating of steel only. Work is not confined entirely to steel, as there is still a considerable tonnage of heavy wrought iron forgings used by railroads in the United States. To heat this wrought iron, two additional Stevens regenerative furnaces were installed at the end of the shop.

All the furnaces are equipped with Leeds & Northrup indicating and recording pyrometers. The equipment illustrated gives a complete history of the forging during heating and enables one to know the rate at which the heat was applied, the time of soaking at heat to insure proper penetration and whether or not the material was withdrawn for forging at the proper temperature. The time of soaking steel and the rate at which the temperature is increased depend entirely on the cross-section of the material. In the past this important phase of the work has not been given the serious consideration due it.

\*Engineer of Tests, American Locomotive Co., Schenectady, N. Y.



*Battery of Recording Pyrometers for Controlling Heating Furnaces in Forge Shop*

Bristol pyrometers to record the checker temperatures and thermostatic regulators for controlling the flow of water through the furnace jams are also provided, together with automatic shutoffs at the fuel oil burners to safeguard against explosions. This battery of furnaces has proved to be economical from a fuel and maintenance standpoint.

#### **Electric Charging Machine and Manipulator**

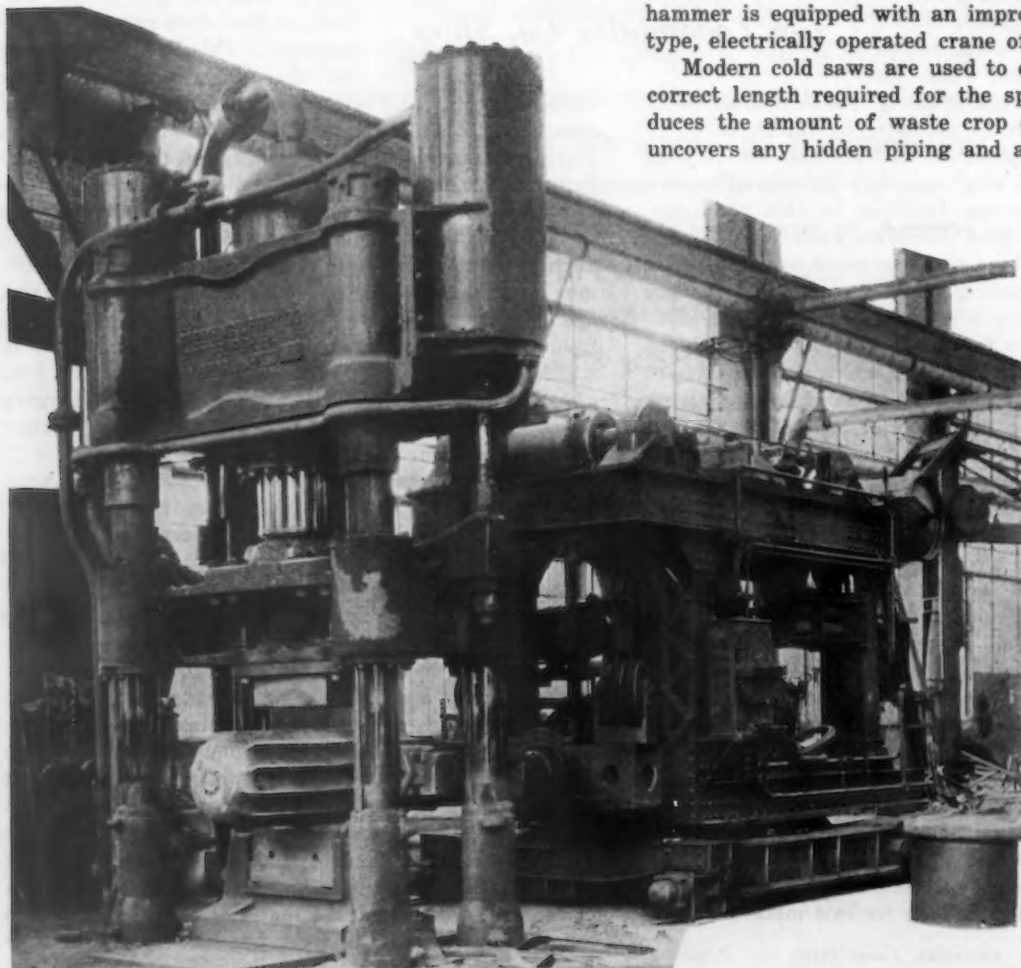
All of the large round work, such as driving and trailing axles, as well as main crank pins, are forged under a 1000-ton high-speed steam-hydraulic press made by United Engineering & Foundry Co. A manipulator of 10,000 lb. capacity, manufactured by the Alliance Machine Co., reduces materially the labor in the production of such forgings, and requires much less muscular effort on the part of those men who are needed. The manipulator moves and revolves the ingot

or billet to the varied positions as required. When one end is finished, the forging is placed on a turntable alongside, and turned end for end. This scheme avoids making any tong scrap. A press of this capacity permits depth penetration and refinement in the steel, even to the center of the mass, all of which are contributing factors in producing quality.

Further to facilitate handling and reduce labor an electric charging machine operates directly in front of the furnaces on a 23-ft. gage track. This machine, with a peel 20 ft. long, is used for charging the furnaces and moves the steel from the furnace to the press or hammers as required.

In addition to the press, the hammer equipment in this shop consists of a 12,000-lb. Erie steam hammer and three 8000-lb. steam Bement hammers for forging steel, and two 6000-lb. Bement hammers in front of the wrought iron furnaces. The heavier work is confined to the hammers of the greater capacity. Each hammer is equipped with an improved Whiting, pillar-type, electrically operated crane of 10,000 lb. capacity.

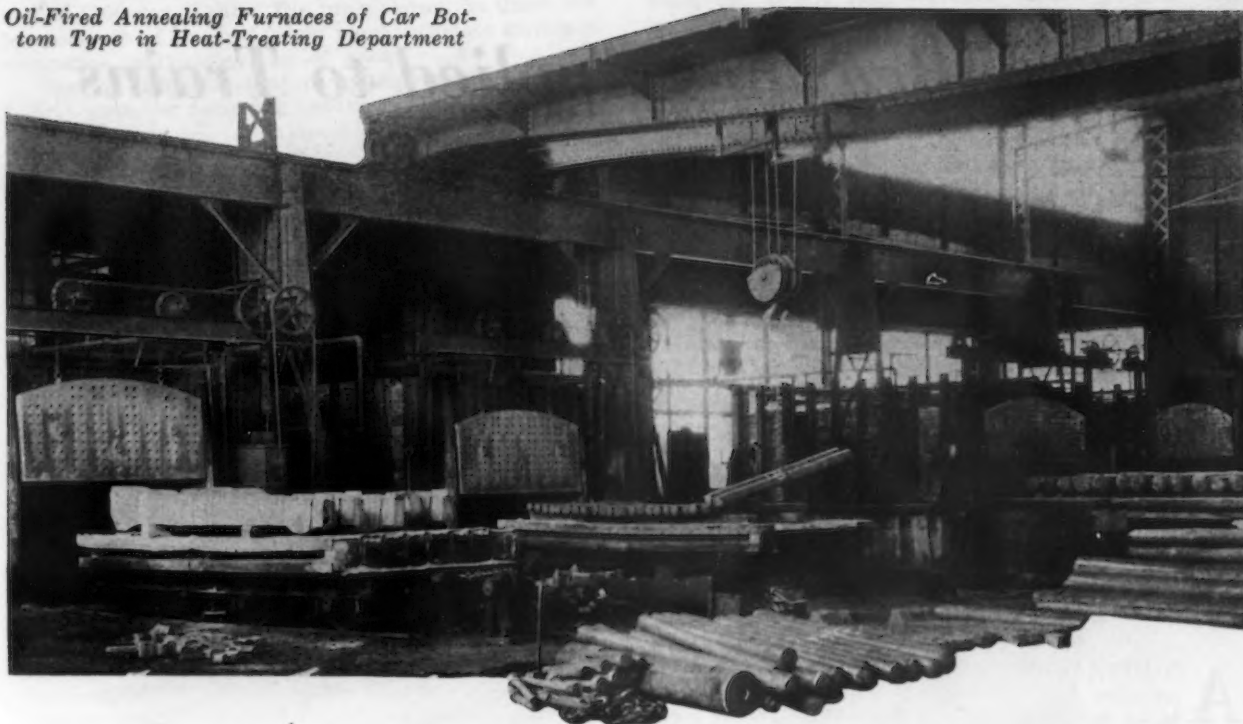
Modern cold saws are used to cut the billets to the correct length required for the specific job. This reduces the amount of waste crop ends to a minimum, uncovers any hidden piping and also reduces the cost



*1000-Ton Hydraulic Press. Manipulator in right background holds fluted ingot on anvil. Turntable in right foreground*



*Oil-Fired Annealing Furnaces of Car Bottom Type in Heat-Treating Department*



of heating for the forging. A special duplex machine for cutting axles to the required length at one setting is also installed.

#### **Extensive Heat-Treating Department**

A modern forging plant would not be complete without the best in heat-treating facilities, because manufacturing is not complete until the forging has been heat treated, tested and found to meet the specified requirement.

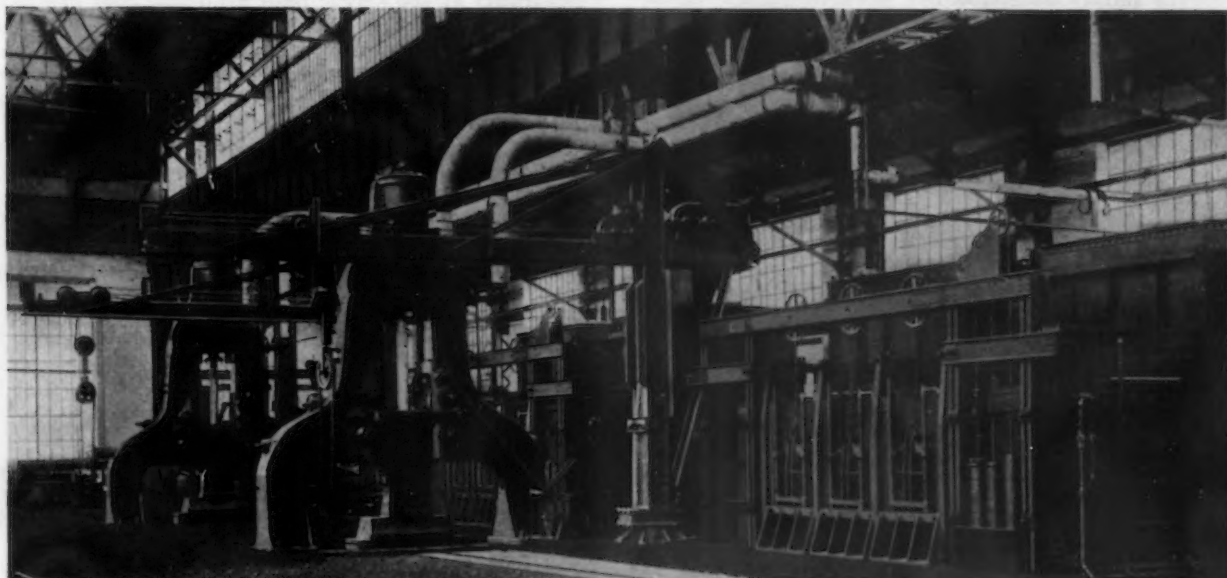
A new heat-treating plant, 122 x 159 ft., with roof 33 ft. high, of modern fireproof construction, a complete unit in itself, adjoins the forge shop. The forgings are transferred to this heat-treating plant on cars hauled by a storage battery truck. Major items of equipment are two 10-ton electric cranes for charging the annealing furnaces—eight low-pressure, oil-fired, car-type furnaces of varied dimensions. All the furnaces are equipped with a perforated arch which keeps the flame from coming in direct contact with the materials being heated, and more evenly distributes the heat into the mass.

Forgings are loaded on the car hearth, each piece being placed on cast iron blocks which raise it about 4 in. from the hearth. Space is allowed around each of

the forgings, which are charged in single tiers, all of which enables complete and uniform radiation and proper heat penetration into the forging. The annealing furnaces are equipped with Brown indicating and recording pyrometers, which write a complete history of the treatment. Each heat is also checked by the use of a Siemens water pyrometer. To avoid delays when the forgings are ready to be air-cooled, the car-body hearths are pulled out by Sprague electric car pullers, one for each furnace.

Most of the forgings are normalized and annealed, but to take care of such forgings as are specified to be quenched, a 16 x 21 x 10-ft. tank is installed. The quenching medium is cooled by a motor-driven circulating pump, which passes the liquid through cooling coils in a vertical water cooler. All of the quenched forgings are given a proof test under a drop testing machine.

Because of the exacting specifications, considerable testing is required. Test coupons are cored out with a hollow drill by means of a horizontal boring mill, which reduces the time required to a minimum. To complete the work, a modern laboratory with chemical and physical facilities is provided, all being real factors in the production of high quality forgings.



*Two Units for Wrought Iron Forgings. Each has heating furnace, 5-ton jib crane, 6000-lb. steam hammer*



# Alloy Bearings Applied to Trains

**R**AILROADS have been experimentally operating passenger trains which are equipped with roller bearings in all the journals. Several trains thus equipped are on the Chicago, Milwaukee & St. Paul, the Chicago & Northwestern and other railroads. Some facts about the particular alloy steel, nickel-molybdenum, used in one type of these roller bearings, are given in this article.

BY DR. F. C. LANGENBERG AND  
CHARLES MCKNIGHT\*



**A** COMBINATION of nickel and molybdenum in an alloy steel is not new but, due to its utilization in an industrial bearing field which is being given a great deal of prominence at the present time, it is believed that certain facts about this combination will be of interest. The authors will not attempt to give any extended bibliography on these steels, as this has been very admirably done by Dr. H. W. Gillett and E. L. Mack in their book "Molybdenum, Cerium, and Related Alloy Steels."

Nickel-molybdenum steel in the low-carbon compositions has been very satisfactorily used for several years in a number of parts such as piston pins, differential gears, ring gears, steering knuckle pins, and other carburized parts. The possibility of obtaining a fine core and a hard case after a single quench gives this composition certain advantages over other types of steel used for similar purposes. Instances are on record where large nickel-molybdenum crankshafts have been given a single quench after carburizing and a scleroscope hardness obtained between 80 and 85 after an oil quench.

Although the Society of Automotive Engineers has not yet presented a physical property chart of nickel-molybdenum steel, the data shown in the curves in the reproduced chart have been obtained from most reliable sources, and it is believed they will be of interest. The chart shows the physical properties of the core of a case-hardened steel after the treatments recommended for a steel of this composition.

Two of the illustrations show the application of

\*The authors are respectively vice-president Climax Molybdenum Co. and metallurgist, development and research department International Nickel Co., New York.



Race and Cone of This Two-Ton Bearing for a Cement Mill Are Made of Nickel-Molybdenum Steel

two types of anti-friction bearings to a railroad journal. In both cases, the cones and races are made of nickel-molybdenum steel, case hardened. A very hard wearing surface is obtained after the proper treatment and, in conjunction with the hard wearing surface, a strength of core results which gives a high resistance to shock and impact.

The application of this composition is not confined to railroad bearings, as is illustrated in another illustration. This is a bearing weighing over two tons for a cement mill, in which both the race and cone are made of carburized nickel-molybdenum steel. In comparison with this bearing, it should be borne in mind that the very smallest bearings for machine tools and those in the automotive industry are likewise fabricated, and in many instances the rollers themselves are a carburized steel similar to the races and cones.

## Heat-Treated: Applicable for High Temperatures

**A**N inspection of the physical property chart, already referred to, of the nickel-molybdenum carburized steel shows one very decided characteristic, namely, the uniformity of the elastic limit after the steel has been subjected to different drawing temperatures. This fact suggests the possibility of applying this composition for high temperature work, and with this in view certain experiments have been conducted which are outlined below.

The following chemical analysis was selected utilizing a rolled bar 2 in. in diameter:

C.	Mn.	Sul.	Phos.	SiL.	Ni.	Mo.
0.305	0.51	0.021	0.018	0.19	1.14	0.14

This was then cut into bars 12 in. long. These were then placed in a muffle furnace and given the following heat treatments:

	Deg. Fahr.
Normalize at.....	1,650
Quench (in water).....	1,450
Draw at.....	900
Draw at.....	1,000
Draw at.....	1,100
Draw at.....	1,200
Draw at.....	1,300

All bars were normalized from a temperature of 1650 deg. Fahr. and then reheated to 1450 deg. Fahr., and quenched in water. Bars were then drawn at each of the following temperatures:

900 deg. Fahr.; 1000 deg. Fahr.; 1100 deg. Fahr.; 1200 deg. Fahr.; and 1300 deg. Fahr.

At least one specimen from each draw was pulled

at room temperature (74 deg. Fahr.), 600 deg. Fahr., and at 1000 deg. Fahr. The table shows the draw, the temperature of the test, yield point, ultimate strength, elongation and contraction of area.

Charpy bars broken at room temperature (74 deg. Fahr.) gave the following results:

Draw, Deg. Fahr.	Ft. Lb.	Average Charpy	Remarks
900	25.32	25.61	
	25.03		
	26.20		
	25.91		
1,000	32.62	31.34	
	31.68		
	30.29		
	30.75		
1,100	39.05	38.48	Failed to break
	38.74		Failed to break
	37.09		Failed to break
	39.05		Failed to break
1,200	48.88	49.01	Failed to break
	47.83		Failed to break
	50.11		Failed to break
	49.23		Failed to break
1,300	54.56	53.67	Failed to break
	54.56		Failed to break
	52.77		Failed to break
	52.77		Failed to break

It is very obvious from an inspection of these data that nickel-molybdenum steel, in the higher carbon ranges, gives a high resistance to impact as compared to other compositions when the same physical properties as regards elastic limit and tensile strength are obtained. It is also apparent that the elastic limit at temperatures above atmospheric does not fall off as rapidly as is the case for some other compositions.

This at once suggests its use for high temperature applications, such as valve bodies and bolts. This characteristic is not being overlooked by the manufacturers of valves and fittings, and some quite interesting work is being done at the present time on the manufacture of castings, the results of which it is hoped can be made public at a later date.

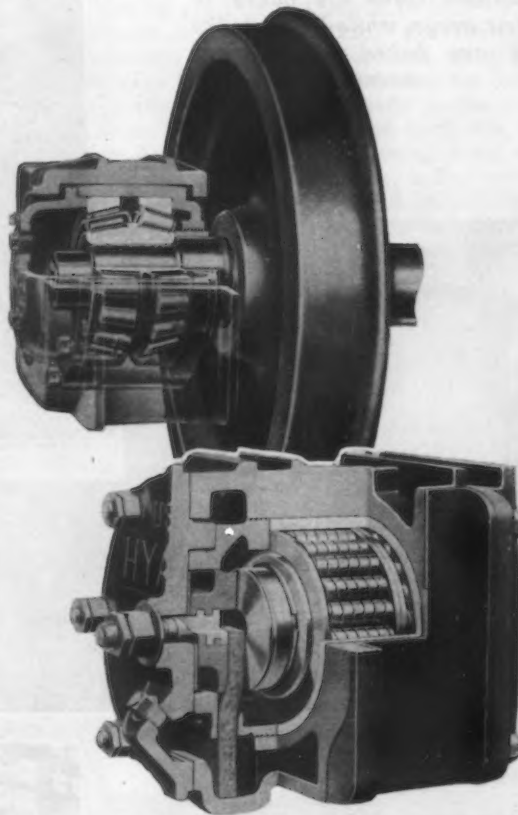
### Alloys in Scrap Recoverable

FROM the economical viewpoint, both nickel and molybdenum have the chemical characteristics which make them completely recoverable alloys. In other words, nickel-molybdenum steel scrap can be safely charged into any type of melting unit with the assurance that the alloying elements will be recovered in the finished heat. One plant, engaged upon the production of bearings, utilizes nickel-molybdenum steel almost exclusively.

In view of the fact that the weight of the finished bearing is only a small proportion of the metal charged into the furnace, the item of recoverable alloying ele-

recoverable elements becomes exceptionally important when the article manufactured utilizes only a very small proportion of the raw material.

The manufacture of ordnance was always regarded as a hazardous enterprise, due to the fact that the weight of the product shipped was so exceptionally low as compared to the weight of the product charged into the melting furnace for its fabrication. Roller bearings are very similar to ordnance in respect to the point that their finished weight does represent a very small percentage of the metal melted for their fabrication. If the application of anti-friction bearings to the railroad industry continues as is anticipated, there



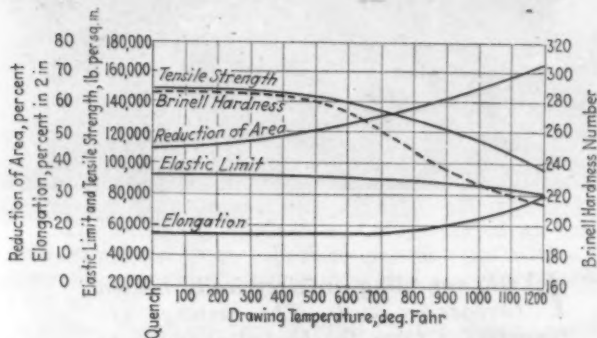
Application to Passenger Cars of Two Types of Roller Bearings Made by Two Large American Companies

can be no question but what the utilization of an alloy steel having a high scrap value will be an important economic factor.

Table of Properties of Heat-Treated Specimens Tested at 74, 600 and 1000 Deg. Fahr.

Draw Temp., Deg. Fahr.	Specimen	Temp. at Test, Deg. Fahr.	Yield Point, Lb. per Sq. In.	Ultimate, Lb. per Sq. In.	Elongation, Per Cent	Red. of Area, Per Cent
900	629-1-1	74	105,000	140,450	17.5	64.7
	629-1-2	74	108,000	143,950	16.5	62.3
	629-2-1	600	123,000	144,500	27.0	75.5
	629-2-2	1,000	53,000	71,500	24.0	87.5
1,000	629-3-1	74	104,000	130,450	20.5	67.0
	629-4-1	600	102,000	132,500	25.5	64.7
	629-4-2	1,000	52,000	74,500	23.0	37.5
1,100	629-5-1	74	102,000	123,600	21.0	69.2
	629-6-1	600	85,000	117,500	23.5	73.5
	629-6-2	1,000	54,000	75,000	24.5	88.7
1,200	629-7-1	74	89,000	107,300	25.0	75.5
	629-7-2	600	76,000	109,000	24.5	64.7
	629-8-1	1,000	56,000	70,000	30.0	85.8
	629-8-2	1,000	55,000	69,500	23.0	94.3
1,300	629-9-1	74	76,000	92,900	29.5	75.5
	629-9-2	1,000	41,000	59,500	35.0	88.7
	629-10-2	600	57,000	98,500	31.0	71.4

Total apparent consumption of babbitt metal in November, 1927, based on reports received by the Department of Commerce from 21 firms, was 4,505,954 lb., compared with 5,115,598 lb. in October. Total apparent consumption during the first 11 months of 1927 was 55,646,056 lb., compared with 61,426,584 lb. and 63,602,444 lb. during the corresponding periods of 1926 and 1925, respectively.



Physical Properties of Core of Case-Hardened Nickel-Molybdenum Steel, Single Treatment.

The analysis of this steel was: Carbon, 0.15; manganese, 0.58; silicon, 0.25; nickel, 1.62; molybdenum, 0.286; sulphur, 0.032, and phosphorus, 0.016 per cent.

The recommended heat treatment is: Forge at 2100 to 2200 deg. Fahr.; normalize at 1625 to 1650 deg.; anneal at 1550 to 1575 deg. and quench at 1450 to 1470 deg. after carburizing in oil. Test pieces treated in 1-in. rounds

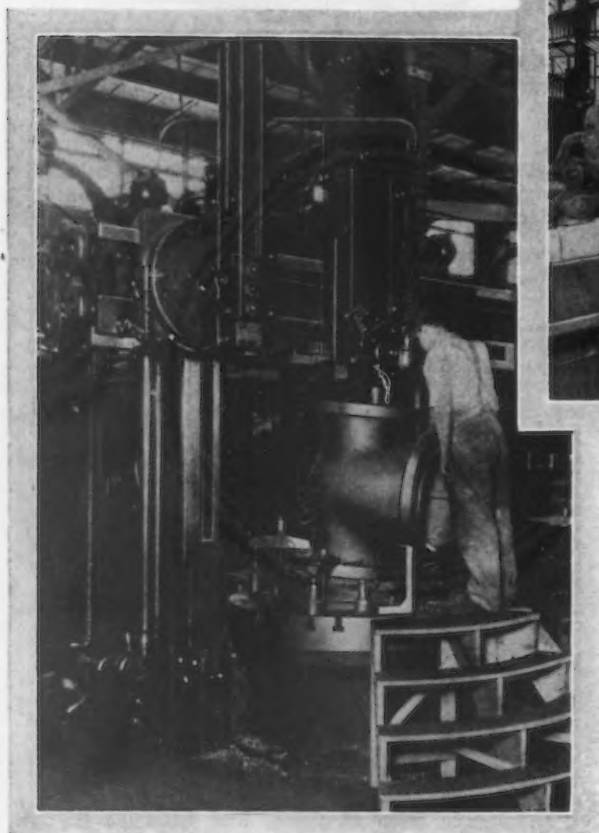
ments becomes an important economic factor. In a plant fabricating its own steel, or in a plant so located that turnings and other returned scrap can be utilized, the necessity of employing an alloy steel having



## Electric Foundry of Lunkenheimer Co.

*AT the Carthage plant of the Lunkenheimer Co., Cincinnati, where iron and steel valves are made, there are two 2½-ton electric steel furnaces.*

*INTRICATE and the more important cores are baked in electric ovens, while large, bulky cores are baked in gas-fired ovens.*



*FOR annealing an electrically heated furnace is used. The castings are transferred from the heated chamber to an unheated chamber for the cooling period, an arrangement making for efficient and economical operation.*

*INDIVIDUAL motor-driven machine tools, together with electric cranes and hoists, help to make possible one-man operation on much of the work.*



# Canadian Outlook Hopeful for 1928

## Improvement in Steel and Related Industries Expected to Continue—Pig Iron Trade Suffers from United States Competition

TORONTO, ONT., Jan. 10.—The outlook for 1928 in Canadian industry is for a continuance of the betterment which has been in evidence for some months. While some industries have shown greater improvement than others, the industrial situation as a whole has benefited by last year's high wheat yield, the greater activity in mining operations and the increase in the supply of hydroelectric power at low cost.

In some branches of the iron and steel industry there was marked improvement in 1927, while in others operations remained at about the same level as in 1926. With the exception of the lowering of duties on a few minor products, the Government did not put further obstacles in the way of the iron and steel industry. But at the same time nothing was done to correct the situation created by tariff revisions of former years, and as a consequence the industry faced the same conditions with respect to outside competition that it had in 1925 and 1926. The reduction of the tariff on agricultural implements in April, 1925, followed by the dropping of the duty on pig iron and certain other raw materials as a compensation to Canadian implement manufacturers, deprived Canadian blast furnace operators of a part of their market, as iron from the United States undersells Canadian iron.

### One of the Best Years Since 1920

From the standpoint of demand for products and plant operations, 1927 was one of the best years Canadian iron and steel mills have had since 1920. Throughout the year the principal mills at Sydney, N. S., Hamilton and Sault Ste. Marie, Ont., were in operation on almost a 100 per cent basis. Jointly these companies spent upward of \$1,100,000 on plant additions and improvements. The Dominion Iron & Steel Co., Sydney, N. S., made general improvements costing \$500,000; the Steel Co. of Canada, Ltd., Hamilton, Ont., spent more than \$300,000 on a new sheet mill and other extensions, and the Algoma Steel Corporation, Sault Ste. Marie, Ont., remodeled its rail mill and made other changes in its equipment costing \$300,000.

The Algoma Steel Corporation operated at almost full capacity from Jan. 1, 1927, until about the middle of August, when it completed rail orders on hand and blew out one of its two operating blast furnaces, shut down its rail mill and curtailed operations of open-hearth furnaces. In November the company again started up its rail mill and announced that it had 100,000 tons of unfilled rail orders on its books, sufficient to keep its mill running until spring.

The Steel Co. of Canada, Ltd., reported an exceptionally good year. Besides enjoying an active domestic business, the company closed some large orders for export.

The Dominion Iron & Steel Co. has shown a marked improvement in operations. A statement issued by company officials late in November showed that for the first time since 1925 every one of the 2600 men on the payroll of the Sydney plant was working full time six days a week, with the definite prospect that the mills would continue on that basis for the rest of the winter. At the annual meeting it was announced that the company's unfilled orders were more than 20,000 tons in excess of those it had at the beginning of 1926.

The British Empire Steel Corporation has announced that the 1928 output of its Bell Island, Newfoundland, iron mines, estimated at 1,300,000 tons, has been contracted for. Of this amount, 800,000 tons will be shipped to Germany, 400,000 tons to the company's furnaces in Nova Scotia and 100,000 tons to the United States. The company has been shipping iron ore to Germany and to the United States for several years.

Production of pig iron in Canada in 1927 showed a slight reduction from that of 1926. For the first six months, however, production proceeded at a higher monthly average than in 1926, but during the last half there was a sharp decline, due chiefly to the blowing out of furnaces at Sydney, N. S., and Sault Ste. Marie, Ont., during August, and to the closing down of one of the two furnaces at Hamilton, Ont., in September for relining. To some extent, increased importations of pig iron had an adverse effect on Canadian output. A comparison of 1926 and 1927 pig iron production figures by months is given:

(Gross Tons)		
	1927	1926
January .....	51,717	56,644
February .....	50,695	49,746
March .....	75,637	53,251
April .....	77,240	67,607
May .....	78,987	72,762
June .....	69,437	70,854
July .....	50,997	67,232
August .....	63,234	58,780
September .....	52,470	64,187
October .....	38,097	79,124
November .....	37,989	52,347
December .....	*50,250	53,971
Total .....	696,750	737,503

\*Estimated.

Production of steel ingots and castings gained about 12 per cent. Monthly outputs of steel ingots and castings are compared in the following table:

(Gross Tons)				
	1927		1926	
	Ingots	Castings	Ingots	Castings
January .....	55,898	2,653	66,221	2,315
February .....	52,144	3,476	50,207	2,950
March .....	102,141	5,240	54,641	3,924
April .....	104,540	4,567	76,046	3,890
May .....	92,227	4,484	85,604	3,909
June .....	55,443	4,497	77,684	3,593
July .....	52,776	2,474	62,396	2,451
August .....	74,319	3,160	43,546	2,128
September .....	52,010	2,240	57,164	1,673
October .....	54,190	2,181	61,415	2,127
November .....	78,436	2,294	52,116	2,195
December .....	*80,250	*2,500	56,310	2,183
Total .....	854,375	39,766	743,550	33,338

\*Estimated output.

While import figures are available only for the first nine months of 1927, they give some indication of the increase in pig iron shipments into this country. For the nine months ended with September, 1927, imported pig iron reached a total of 32,940 tons, as compared with 21,433 tons for the corresponding nine months of 1926. Of the nine months' imports, 27,887 tons came from the United States as against 13,946 tons from this source in the same period of 1926.

### Improvement in Other Industries

Foundry operations throughout the year showed a slight improvement compared with 1926. In the agricultural implement industry there was general improvement and greater output. With the large crop yield in the Canadian West, this industry expects even better conditions for this year.

The index of Canadian industrial production for the first 10 months of 1927, compiled by the Dominion Bureau of Statistics, set an average monthly level of 156.3, a gain of 10.4 points over the average level of 145.9 for all of 1926, and a still broader improvement over 1925, which was 128.8.

# 38 Constituents of Annealed Steel

Frequently Include Massive Cementite in Addition to Ferrite and Lamellar Pearlite

BY JAMES J. CURRAN\*

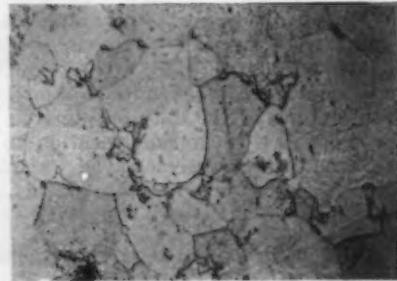
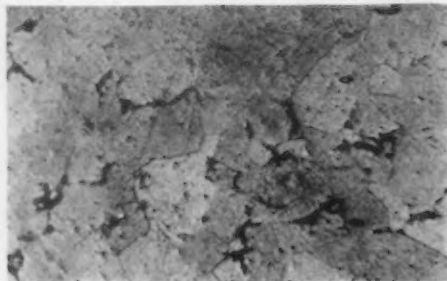
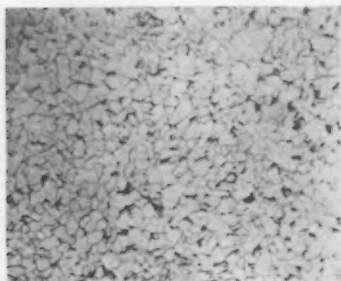
TEXTBOOKS on metallography usually focus the reader's attention on the statement that lamellar pearlite is the normal condition of the eutectoid in slowly cooled plain carbon steels. That this is by no means true is known to experienced observers, and demonstrated by the micrographs below. Spheroidized or massive pearlite may be produced in steels of any carbon content by proper anneals. Three constituents in one field represent an intermediate stage in the change from lamellar pearlite to massive cementite (spoken of in advanced textbooks as the most stable constituent containing carbon).

Massive cementite in a plain carbon steel containing less than 0.10 per cent carbon may be new to many. In

\*Henry Souther Engineering Co., Hartford, Conn.

the top row is the conventional appearance of a rivet steel, magnified 50 diameters, after etching 30 sec. in 1 per cent nital. The center view represents a similar view, magnified 250 diameters. The dark areas here are not fine grained pearlite, but massive cementite, as proved by the right hand view of the same specimen, after repolishing and etching in alkaline sodium picrate.

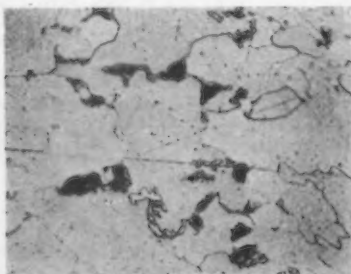
The groups below represent three carbon steels, each annealed at two different temperatures. The anneals were applied to adjoining sections of the same bar in the forged, normalized, and air-cooled condition. The microphotographs show that long heating near the critical temperature will break up lamellar pearlite and materially soften the steel. The lower six are etched 30 sec. in 1 per cent nital and magnified 250 diameters.



Massive Cementite in Steel Containing Less Than 0.10 Per Cent Carbon

After Annealing at  
1400 deg. Fahr.  
87 Brinell  
19 Scleroscope

Structure:  
Lamellar pearlite  
Massive cementite  
Ferrite



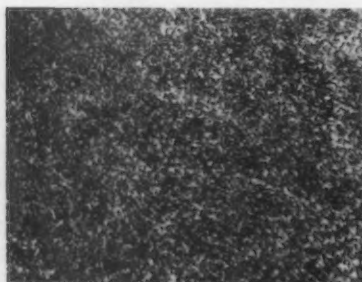
After Annealing at  
1700 deg. Fahr.  
86 Brinell  
20 Scleroscope

Structure:  
Lamellar pearlite  
Ferrite

Steel, 0.17 Per Cent Carbon, 0.50 Per Cent Manganese

After Annealing at  
1430 deg. Fahr.  
170 Brinell  
27 Scleroscope

Structure:  
Spheroidal cementite  
Ferrite



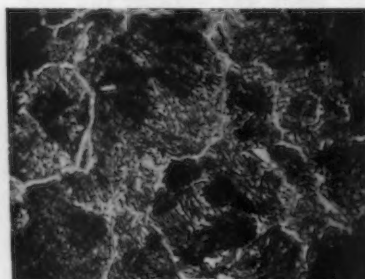
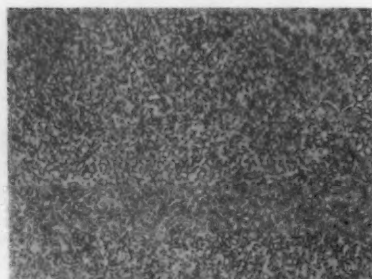
After Annealing at  
1650 deg. Fahr.  
228 Brinell  
37 Scleroscope

Structure:  
Lamellar pearlite  
Traces of massive  
excess cementite

Eutectoid Steel, 0.91 Per Cent Carbon, 0.23 Per Cent Manganese

After Annealing at  
1400 deg. Fahr.  
187 Brinell  
29 Scleroscope

Structure:  
Spheroidal cementite  
Traces of network  
cementite  
Ferrite



After Annealing at  
1650 deg. Fahr.  
235 Brinell  
36 Scleroscope

Structure:  
Lamellar pearlite  
Network excess  
cementite

Hypereutectoid Steel, 1.29 Per Cent Carbon, 0.40 Per Cent Manganese



# No Retreat From World Steel Markets

Banker's View That Exports Be Reduced Vigorously Refuted on Ground of International Relations, Domestic Economy and Merchant Marine

BY A STEEL EXPORTER

**A**N ADDRESS was given before the Academy of Political Science on Nov. 18, 1927, by O. H. Cheney, vice-president American Exchange-  
Irving Trust Co., in New York, and published one week later in the *Analyst*. It was entitled "America in the World Steel Markets—A Warning," and asked the question "Should the American steel industry let the foreign steel producers take away its world markets?" answering it with the words "It should."

This pronouncement, while little commented on in the press, has been a subject of criticism in business circles. At THE IRON AGE'S invitation, I present some facts, which while generally well known to those engaged in foreign trade, are apparently not so well known elsewhere.

## European Steel Exports Expanding Rapidly

Mr. Cheney said:

"The export business of Europe's steel producers means the very life of Europe's fundamental industry. The recovery and maintenance of that industry is at the very heart of the recovery of international economic stability. Continued instability would be the price we would have to pay and make Europe pay for insisting on a growing export market for steel and other commodities."

Earlier in the same article it is stated that the continental European producers have recovered from the war and that in 1926 their total exports exceeded pre-war totals; also, that in 1927 the world is 10 per cent ahead of 1926 in steel production. So far then from the progress of recovery of the European nations having been hindered by our comparatively small tonnage of exports of iron and steel products, the European steel industries have already secured as large a share of the total world business as even the most optimistic could have expected. Note the following figures showing the change in export trade:

Germany .....	1,307,000 tons in 1923	4,887,000 tons in 1926
France .....	778,000 tons in 1921	4,183,000 tons in 1926
Belgium .....	902,000 tons in 1921	3,761,000 tons in 1926
United States ..	1,988,085 tons in 1922	2,167,048 tons in 1926

These figures, coupled with the declining ratio of American exports, clearly disprove any contention that American exports had made inroads on the annual increase secured by continental European manufacturers, or affected the steady increase in production and exportation of European steel.

## American Sales Made on Quality Rather Than Price

The fact of the matter is that there are many customers and markets in the world which are willing to pay such a substantial premium for American quality that this export business is obtainable, with the exercise of considerable effort, notwithstanding the discrepancy of higher costs, wages, inland and ocean freight rates and discriminatory duties. Furthermore, much export trade of the United States in iron and steel products is with Canada and certain other nearby countries, which, because of their proximity, are natural markets for this country.

The article further says:

"If our export business in iron and steel could possibly be increased, it could only be by a bitter price-cutting struggle."

Of course, the assumption here is that this struggle would be solely due to American efforts to secure more export business, whereas the fact is that for many years past there has been a bitter price-cutting struggle for export business between the various European manufacturers. So disastrous has this condition been to the European manufacturers generally—involving the selling of heavy tonnages at less than the net cost of manufacture, even at the low rates of wages and other

conditions prevailing in Europe—that a number of international cartels have been formed for the limiting of production and the apportioning of estimated demand. These have not, however, been as yet successful in securing the desired effect; recent press advices are to the effect that efforts are now being made to establish joint selling agencies which will be able to maintain more satisfactory prices and apportion the orders among the various manufacturers in accordance with their cartel agreements.

During the last 25 years there has never been a time (except during the World War and the years immediately following it when European competition was discontinued) when that competition was not encountered on a basis of lower costs and consequent lower prices. It is worthy of repetition that the American exports of steel have been accomplished, not by cutting prices below those of European competitors, nor even by meeting their prices when that would involve too great a sacrifice, but principally by furnishing material of superior quality and adaptability for the purposes for which it was intended, for which foreign customers have been willing to pay a premium over the prices of cheaper but inferior European material.

## Much Study Given to Technical Problems

A further criticism by Mr. Cheney is:

"If the American steel producers could devote the knowledge and thought needed in developing export business against desperate foreign competition to solving their urgent domestic problems the returns would be many times greater." The article also suggests that "if the steel industry could strive to regain some of the market now being given up to cement it would not only increase volume but would have to gain some new efficiency in the process."

This ignores so much that is going on in the steel industry of this country that a detailed reply is unnecessary in these columns. It is, and has been for many years past, the constant and earnest endeavor of the principal American producers of iron and steel products, to solve problems of every kind in the conduct and development of their industry. The paper entitled: "Technological Problems of the Steel Industry," which was read by William A. Forbes, assistant to president United States Steel Corporation, at the Oct. 28, 1927, meeting of the American Iron and Steel Institute, is illustrative. The final statement in this pamphlet read in part:

"The United States Steel Corporation and its subsidiary companies operate 179 laboratories devoted to chemical, physical, microscopical, metallographical and other testing, these laboratories directly requiring a total force of 2115 employees, and the rest of the steel industry of this country unquestionably has proportionately as many."

But what is of more importance, not only to the steel industry itself, but to the nation as a whole, is to have a correct appreciation of reasons for maintaining and expanding our export business in iron and steel products.

In the first place, the lowest costs of production are only possible if the mills are operated at a high percentage of capacity. Plants which are wholly or partly closed down constitute a heavy charge upon production, and increase costs. Experience has shown that export orders have frequently enabled continuous operation of mills which would have been compelled to close for an extended period had they been dependent alone on domestic orders. Continuous operation of



these mills reduced the average cost of their products, and this was undoubtedly reflected in the prices at which they were sold—not only to the foreign purchasers, but also to the domestic trade—likewise in reduction of unemployment and in maintenance of high wages.

### Heavy Steel Exports Necessary for Efficient Merchant Marine

Another important reason for maintaining and extending our export trade in iron and steel products is the necessity for providing outward bound heavy-weight cargo for our merchant marine. We presume that no one will question the advantage to this country of an adequate merchant marine. It is generally recognized desirable that at least 50 per cent of our inward and outward sea-going cargo should be carried in American vessels. This desirable percentage has not yet been attained; in 1920, 42 per cent of the nation's foreign trade was carried in American ships, but at present only about 30 per cent. Even this quantity is being carried at the expense to the taxpayers represented by the deficit from the operation of the fleet of the United States Shipping Board. Economical operation by private American owners under the existing laws is also extremely onerous.

A ship cannot be operated without heavy loss to its owners—or in the case of Shipping Board vessels to the taxpayers of the United States—if it can obtain a full cargo only one way and has to be operated in the other direction in ballast or with only a small, inadequate amount of cargo. Furthermore, it cannot be safely or economically operated with only what is known as measurement cargo, i.e.: light weight cargo. One of the best and most convenient classes of dead weight cargo consists of iron and steel products, the very kind which Mr. Cheney thinks we ought to cease selling for export.

It is not merely a question of the cruder forms of iron and steel, as the exports of the United States also include very respectable quantities of finished products into the manufacture of which steel largely enters. For instance, during the ten months, January to October, 1927, there were exported from the United States over \$167,000,000 worth of industrial machinery and over \$78,000,000 worth of agricultural machinery, all of which naturally had to compete in quality or price with similar products of European manufacturers. There would not seem to be any difference in principle between developing an export business in steel products generally, which Mr. Cheney deplores, than in machinery, or, for that matter, in automotive vehicles which apparently are approved by him. It is estimated that American exports in automobiles in 1927 will be close to \$475,000,000, a gain of some \$50,000,000 as compared with 1926.

### Exports of Other Industries Compete with Europeans

The total value of exports of steel manufactures—except machinery and vehicles—as given by the Department of Commerce, for the first ten months of 1926, and the same period in 1927, is as follows:

	1926 (10 Months)	1927 (10 Months)
Iron and steel semi-manufactures .....	\$73,452,000	\$74,471,000
Steel mill products manufactures .....	66,871,000	62,015,000
Iron and steel advanced manufactures .....	62,715,000	61,099,000

The two latter items are understood to cover the direct exportation of iron and steel commodities now under discussion, but are inclusive of commodities which few of the steel mills export. Compare these figures with the total value of exports of industrial machinery and agricultural machinery for the first 10 months of 1927, which is \$719,479,000. We also find that in the first 10 months of 1927 there were exported:

Textiles—manufactured and unmanufactured .....	\$798,499,000
Wood and paper products .....	161,829,000
Non-metallic minerals .....	555,472,000
Chemicals and related products .....	109,568,000
Miscellaneous manufactured goods .....	113,143,000

It would be interesting if Mr. Cheney would give an analysis of the relative advantages and disadvantages of stopping exports of these various classes of

goods, as compared with the stoppage of exports of steel, and of the resulting economic consequences to the respective industries.

### Repercussions of 5 Per Cent Steel Curtailment

To refute, therefore, more specifically the question and answer in the *Annalist*, "Should the American steel industry let the foreign steel producers take away its world markets? It should," by *reductio ad absurdum*, let us assume the impossible postulate that there were an embargo against steel exports—or what is equally absurd, an agreement by all American steel manufacturers that they would do no export trade. On the basis of there being 600,000 direct employees in the steel industry and its collateral branches engaged in the production or transportation of steel or its components, there would be a theoretical reduction of 30,000 employees, due to the discontinuance of 5 per cent of the total steel production of the country now exported.

This would represent a total of 150,000 persons, consisting of such employees and their dependents, having a present annual income of approximately \$50,000,000.

The recurring purchasing power of this \$50,000,000 spread over the numerous necessities of life might easily involve an eventual contraction of some \$400,000,000 of commodity exchange. It is conceded that the contraction of employment would not amount to the full 30,000 people now engaged in the manufacture of export steel. A large proportion of this number would necessarily be given modified or reduced employment, but the full effect of the curtailment would be found in the increased costs of manufacture. This increase—so long as the mills of this country could not replace the lost export tonnage with domestic business—would necessarily be reflected in higher prices to the consumer, or in a reduction in profits to the steel industry. On the normal basis of operation at some 15 to 25 per cent less than maximum capacity, a competitive struggle to obtain a relatively larger share of the domestic business would naturally ensue, and bring a logical tendency in the direction of both higher costs and lower selling prices. Thus, instead of the return of 5.33 per cent on the investment which is obtained from the steel industry today (which return the article deplores as insufficient), the condition of still lower dividends would, no doubt, be created—until such time as domestic consumption, without the aid of exports, should overtake production. To what extent this curtailment in turn would create further depressing factors, coupled with a reduced volume of business due to decreased employment in the steel industry, must be left to the further imagination of the economist.

### Danville Structural Steel Co. Sold to Charles M. Schwab

The Danville Structural Steel Co., which operates two plants at Danville, Pa., has been sold to Charles M. Schwab. The transaction was announced by Clarence Weymouth, Mr. Schwab's representative. The company was capitalized at \$900,000 and was headed by Carlton S. Wagner, a nephew of Mr. Schwab. It was formed by a merger of the Danville Structural Tubing Co. and the Pennsylvania Brake Beam Works. The plants have been shut down temporarily for overhauling. Mr. Weymouth said that orders would soon be in hand sufficient for six months' operation.

### Wabana Ore Mines Produced Record Tonnage in 1927

WASHINGTON, Jan. 10.—Between Jan. 1 and Dec. 11, 1927, the record tonnage of 1,151,923 tons of iron ore was taken from the mines of Newfoundland, according to a report received by the Department of Commerce from Consul Avra M. Warren, St. Johns. Production was confined entirely to the Wabana mines at Bell Island. Shipments totaled 1,333,622 tons, of which 800,000 tons went to Germany, 61,030 tons to the United States and 472,592 tons to the furnaces of the operating company, the Dominion Iron & Steel Co., Sydney, Nova Scotia.

## Turret Lathe for Bar Work Up to 2½-In. and Chucking Work to 12-In.

A new turret lathe, designated as the 1L and intended for bar work up to 2½ in. and chucking work up to 12 in., has been added to the line of the Gisholt Machine Co., Madison, Wis. The machine is of the same general design as the company's 2L turret lathe described in *THE IRON AGE* of Sept. 1, page 552, and features include cross feeding or fixed center turret; power rapid traverse to the cross-slide, the side carriage and to the turret carriage.

The headstock is of rectangular box design with walls carried well above the spindle bearings. The headstock cover is a flat plate carrying only the operating levers. Spindle bearings are of the same adjustable taper design as in other of the company's turret lathes, except that tapered roller bearings are employed. The headstock drive shaft, intermediate shaft and reverse shaft are also mounted on tapered roller bearings.

The single drive pulley runs at 600 r.p.m. Twelve spindle speeds, ranging from 20 to 486 r.p.m., are provided through sliding gears and positive jaw clutches mounted on splined shafts. The spindle con-

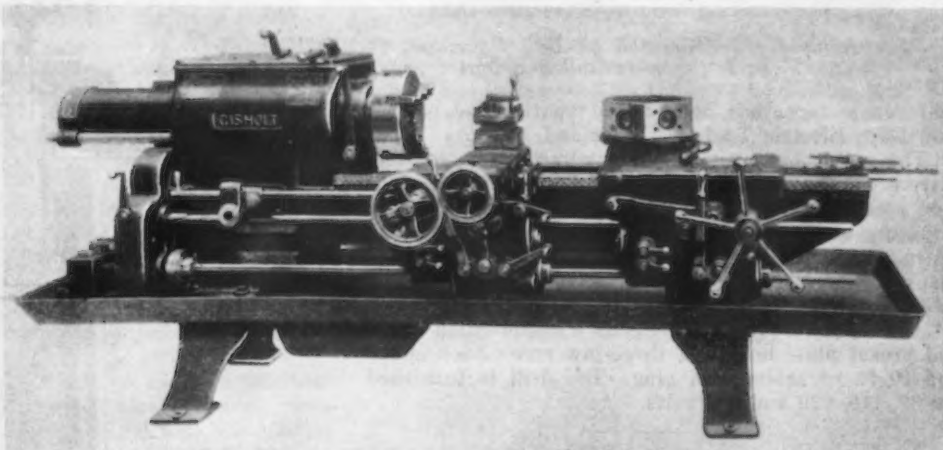
locates the turret holes central with the spindle but the strain of the cut is entirely taken by the bevel clamp ring. Automatic trips are provided for the longitudinal feeds of both carriages, and for the cross movement of both square turret and cross feeding turret.

Hardened steel plates, of 75 Rockwell hardness, cover the ways of the bed, these plates being securely attached with heat-treated alloy steel taper head screws and ground in place. Each movement of the rapid traverse lever, whether forward or back, feeds a small amount of oil by pressure from a plunger in the apron through the under side of the carriage to the ways. Dirt and chips are excluded by felt and brass wipers.

The headstock gearing and clutches run in a bath of oil, a part of which is collected in a splash box, strained and carried to the spindle bearings. Feed train and traverse drive are lubricated with fresh oil from a Madison-Kipp automatic lubricator. Each apron contains its own oil reservoir from which its gears are constantly lubricated by the splash system.

For motor drive, the motor may be mounted either on the headstock or on a special back plate and connected by Texrope, flat belt or silent chain. A 1200-r.p.m. motor of 3 to 7½-hp., depending on the nature of the work, is recommended. An improved power-

*Cross Feeding Turret Is Optional Equipment. Longitudinal rapid traverses are provided for both carriages, and rapid traverse for the in-and-out movement of the square turret tool post on the cross-slide*



trol lever, located just back of the spindle nose, operates a multiple-disk clutch on the drive shaft for starting or reversing the spindle, and when placed in neutral engages a brake which instantly stops the spindle. This clutch is made up of saw steel and phosphor bronze plates, running in oil, and when necessary it can be adjusted without opening the headstock.

From the headstock to the final drive of the carriages all power shafts are mounted on ball bearings. The upper of the two shafts along the front of the bed rotates at suitable speed for feeding the aprons, while the lower shaft rotates at higher speed for the rapid traverses.

The full universal, full swing, two carriage principle of the company's larger turret lathes has been employed in the design. A fixed center turret is standard equipment and a cross feeding turret is optional. Eight independent reversible feeds are incorporated in each apron, with another range of eight feeds, each slightly coarser, available through a lever at the headstock end. Longitudinal rapid traverses are provided for both carriages, with automatic stops at the extremes of travel. Rapid traverse is also provided for the in-and-out movement of the square turret tool post on the cross-slide. Engagement of the traverses is made through serrated tooth clutches of hardened steel, and a low-power friction is carried on the traverse drive shaft to cushion the traverse action and to serve as a safety. It is stated that the two carriages may collide in traversing or be run against a dead stop without danger of breakage.

The square turret on the cross-slide automatically indexes one quarter turn as the clamping lever is released. The hollow hexagon turret is of thick section and is clamped to its base by a double-bevel steel clamping ring operated by a compound toggle. A tapered index pin seating in hardened bushings

operated bar feed, consisting of a screw driven carrier coupled by a flat cone friction clutch to the headstock power, is provided. An automatic chuck with master collet and size pads is operated by the same lever as the bar feed. A 12 in. three-jaw universal chuck is standard equipment for chucking work, but air chucks or wrenchless chucks can be furnished. Taper attachment, lead-screw thread chasing attachment and a complete line of bar and chucking tools are accessory equipment.

The maximum swing over the ways is 17 in.; and over the side carriage, 14 in. The maximum distance from the face of the hexagon turret to the end or the spindle nose is 45 in. The weight of the machine without tools is 4900 lb. net.

## Bankers to Give Views on Scientific Management in Industry

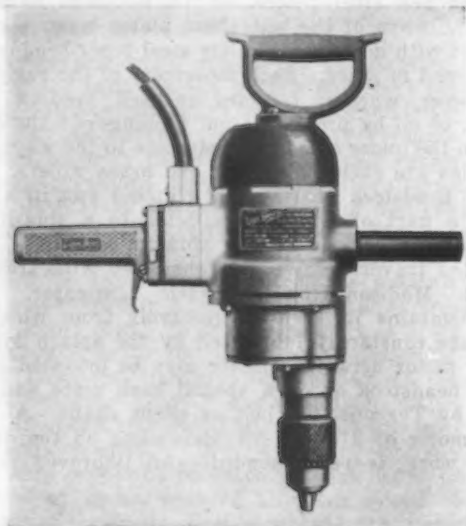
The interrelation of finance and scientific management has been selected for discussion at a series of three meetings planned by the New York section of the Taylor Society.

The first, a dinner meeting to be held Jan. 19 at the Fraternity Clubs, New York, will be addressed by F. W. Shibley, vice-president of the Bankers Trust Co., New York, on "A Banker's View and Experience of Scientific Management in Industry." The chairman of the meeting will be Henry Bruere, first vice-president of the Bowery Savings Bank, New York. The second meeting, Feb. 16, will be devoted to "The Common Interests of Modern Banking and Business Management," and the third, planned for March 15, will be on "What Interest Has the Investment Banker in Scientific Management?"



## Portable Drill for Use in Maintenance Work

A new standard  $\frac{1}{2}$ -in. electric drill, designed particularly for maintenance work in metal-working and other plants, being adapted in power, weight and speed for use by millwrights, plumbers, electricians and gen-



*The Armature Is Mounted on Ball Bearings and Thrust Is taken on Ball Bearings*

eral repair men, has been added to the line of the Van Dorn Electric Tool Co., Cleveland.

The motor operates on either alternating or direct current and has a no-load speed of 540 r.p.m. and full-load speed of 300 r.p.m. The drill has a ball bearing armature and spindle thrust, and hardened alloy steel gears. An automatic safety switch is also a feature. The capacity is for drilling up to  $\frac{1}{2}$  in. in steel. The weight of the machine is 14 lb., and the length, overall, is 15 $\frac{1}{2}$  in. Equipment includes a combination spade and breast plate handle, a three-jaw screw-back chuck and 10 ft. of cable, with plug. The drill is furnished for 32, 110, 220 and 250 volts.

## Offers Lathes with Tapered Roller Bearing Spindle Mounting

The Monarch Machine Tool Co., Sidney, Ohio, is offering its 14-in. to 30-in., inclusive, helical geared-head lathes equipped with spindles mounted in precision-type Timken roller bearings. This spindle mounting, which is optional extra equipment, is emphasized as providing greater rigidity and extreme accuracy.

These bearings are made to tolerance limits of 0.0002 in. to assure accurate spindle alignment. End thrust



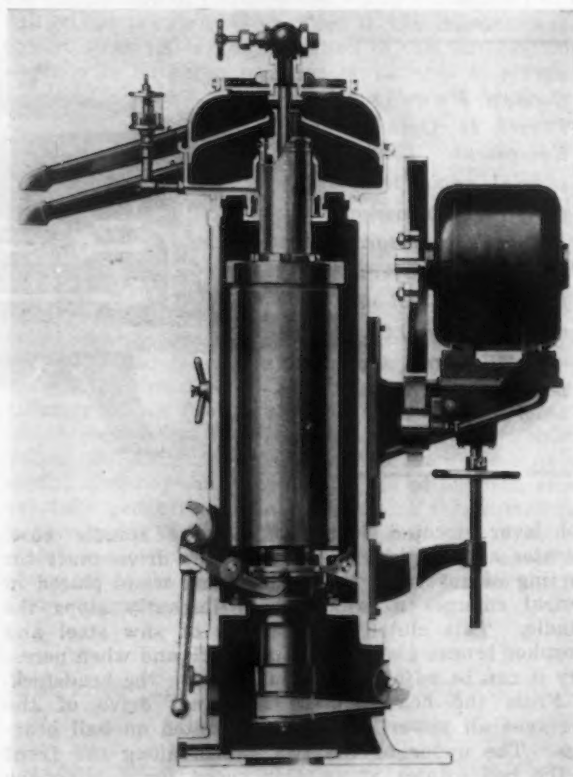
*End Thrust of the Spindle Is Taken Against the Front Roller Bearing*

of the spindle is taken against the front bearing. In mounting the bearings an initial thrust load is imposed, thereby removing radial as well as end movement of the spindle. Although only infrequent adjustment should be necessary, means for adjustment are provided. With a spindle mounted in plain bearings a film of oil between the bearings and the spindle is always necessary. With the anti-friction bearings, it is pointed out, the metal-to-metal contact permits taking of heavier cuts without chatter or vibration. Ease of replacement of the roller bearings, should replacement be necessary, is another feature stressed. Filtered oil is supplied to both spindle bearings.

## Centrifugal Separator and Clarifier for Cutting Oils and Compounds

A centrifugal separator and centrifugal clarifier adapted for use in metal-working plants for the removal of dirt, sand and other foreign material from cutting and lubricating oils and cutting compounds, is being marketed by the Positive Machinery division of the National Acme Co., Cleveland.

The machine combines two units and may be converted conveniently from a separator into a clarifier, although it also clarifies during the separating operation. Features include a bowl of large capacity to permit long runs without cleaning, and facilities for the handling of the large bowl by one operator, without the use of chain blocks. The filter cylinders, which are continuously self-cleaning, centrifugally, are pointed out as combining the filtering principle with centrifugal force. Material is forced through 100 in. of travel or four centrifugal treatments in thin layers during one passage. Simplicity of design and ruggedness are also features emphasized. The step bearing rides on two ball bearings and the bowl is supported by a large bronze bearing. Bowl, cylinders and pulleys are statically and dynamically balanced. The top bearing is designed to assure uniform operation when the ma-



*Clarifier of Stationary Type with Side of Housing Removed. The base measures 20 in. square and the height to the intake is 53 in.*

chine is mounted on a portable truck or otherwise subjected to uneven operating conditions. A patented hand-brake is provided at the bottom of the bowl to stop the machine quickly.

Multiple-speed or constant-speed driving motors may be furnished. In the case of multiple-speed motors bowl speeds are indicated by means of a scale, and on constant-speed motors by standard diameters of pulley, three of which are furnished. A tachometer may be attached to the motor shaft.

The separator is converted into a clarifier by interchanging the separating disk with the clarifying disk, and removing the middle pan with its spout. For cloudless products, the standard inner cylinders in the clarifier and separator are replaced with filter cylinders. The clarifier is fitted with a strainer, which may be removed conveniently for cleaning without disturbing the hose connection. A motor-driven pump, flexible metal hose for attachment to the intake, and a control valve, are furnished. The flexible hose may be detached and the machine fed by gravity.



## High-Speed Sawing Machine for Billets and Other Material

High production, due not only to fast sawing but also to quick handling of material and rapid functioning of the machine between saw cuts is the main claim for a new semi-automatic high-speed sawing machine of the Espen-Lucas Machine Works, Philadelphia.

The machine was designed for use in cropping the ends and the sawing to length of cast, solid and tube billets, it being required to supply an extruding mill at the rate of two sawed billets per minute. The machine saws through 7 in. diameter solid billets in 7 sec., and the time required for clamping and unclamping is 3 sec. The output is dependent therefore upon facilities for passing the work through the machine. With suitable apparatus the complete cycle of operations has been made in 15 sec.

Features include quick-return and quick-feed traverse to the saw carriage by the maker's low pressure (hydraulic) oil feed system. A quick-acting clamp which may be operated either by air or oil pressure is incorporated. All controls are at table end. Material may be passed from the machine without the workman touching it. The drive may be either by direct or alternating current motor, by constant, multi or variable-speed motor.

## Coupling with Wide Range of Flexibility

Unusual range of flexibility is claimed for the L-R flexible coupling here illustrated, which has been brought out by the Lovejoy Tool Works, 319 West Ohio Street, Chicago. Angular misalignment up to  $7\frac{1}{2}$  deg. in each direction; parallel misalignment of  $1/16$  to  $3/16$  in. and endwise shaft movement of  $1/4$  to  $3/4$  in., are said to be made possible without loss of efficiency.

The device is a jaw coupling with radially disposed loosely floating resilient rollers, placed between jaws which extend from the flanges parallel with the shafts. This arrangement is intended to assure rolling contact between the rollers upon relative movement caused either by misalignment or end movement of the shaft. Either solid rubber or rubber covered metal rollers are employed, as conditions require, and an external sleeve is provided to prevent the flying out of idle rollers under centrifugal force. The coupling may be used for rotation in either direction, half the rollers being under compression and the other half being idlers.

It is stated that inasmuch as the force is transmitted by compression, and relative movement of the shafts is accomplished by a rolling movement of the power trans-



*Floating Rollers Between the Jaws Are Important Elements*

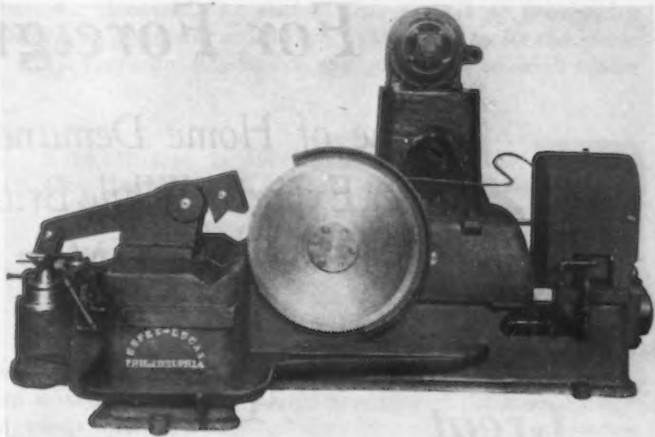
mitting elements, not only end thrust in the shaft will be absent, but also radial thrust. It is claimed that the life of the coupling is therefore long and the coupled equipment made safe and shockproof.

Other features include noiseless operation; balance, permitting any speed; and convenience of replacing rollers without removing members. No lubricant is required. The device is available in several sizes for shafts up to 5 in. in diameter.

The Kalman Steel Co., Chicago, has purchased the plant and assets of the Sykes Metal Lath & Roofing Co., Niles, Ohio, and is reported to be considering a plan to consolidate its Youngstown and Niles properties and create a fabricating unit.

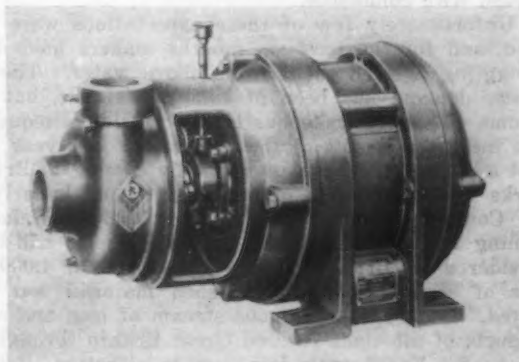
## Centrifugal Pump With Pump and Motor Combined in One Unit

Centrifugal pumping units which combine motor and pump, arranged as illustrated, have been brought out by the Allis-Chalmers Mfg. Co., Milwaukee. Com-



*Rapid Traverse of Saw Carriage Is by Hydraulic System*

pactness is a feature, the complete machine being not much larger than a motor alone. In these machines, which are designated as the type SSU, the pump impeller is fastened to one end of the extended motor shaft, which is of liberal diameter, and the pump casing is bolted to an integrally cast extension of one of the motor end housings. This arrangement is emphasized as providing simplicity of construction, eliminating a base plate, coupling and pump bearings, and as assuring alinement between the pump and motor. The motor bearings, which are the pump bearings as well, are oversized Timken tapered roller bearings. They have ample thrust and radial capacity, and are mounted



*The Pump Impeller Is Fastened to One End of the Extended Motor Shaft*

in dust and grease tight housings. Renewal of the lubricant is necessary only at infrequent intervals.

The pumps are available in  $1\frac{1}{4}$ -in. x  $1\frac{1}{4}$ -in.;  $1\frac{1}{2}$ -in. x  $1\frac{1}{2}$ -in.; 2-in. x 2-in.; and  $2\frac{1}{2}$ -in. x  $2\frac{1}{2}$ -in. sizes, and can be used with 1-,  $1\frac{1}{2}$ -, 2-, 3-, 5- and  $7\frac{1}{2}$ -hp. motors. Capacities range from 25 to 200 g.p.m. against heads from 50 to 100 ft.

## Pratt & Whitney Airplane Motors to Be Built in Germany

The Pratt & Whitney Aircraft Co., Hartford, Conn., announces that it has sold the manufacturing rights in Germany to its airplane engines to the Bavarian Motor Works of Munich. The Bavarian Motor Works is one of the oldest engine building concerns on the Continent. For several years it has made water-cooled engines for aircraft, but negotiated for rights to manufacture the Pratt & Whitney air-cooled motors rather than to develop a design of its own. The Pratt & Whitney company is producing two sizes of radial air-cooled engines, the 400 hp. "Wasp" and the 500 hp. "Hornet."

# European Mills Face a Struggle For Foreign Markets in 1928

*Decline of Home Demand May Make Germany  
Larger Exporter While Britain Seeks to Regain Lost  
Customers—France Must Retain Heavy Exports*

## Great Britain

**A**LTHOUGH still seeking some effective means of stemming the flow of Continental iron and steel into their domestic market and struggling to regain export markets lost during the coal strike, British producers look forward to 1928 with confidence that it will be better than last year. Among the proposed solutions to the British problem of meeting foreign competition at home and abroad are tariff protection, mergers and syndicates.

**A** YEAR ago the British iron and steel industry was slowly awakening from the lethargy ensuing from months of virtual idleness enforced by the coal strike. A number of blast furnaces had resumed operations, and order books for iron and steel generally were well filled as a result of a gradual accumulation of orders gathered during the period of inactivity. Makers were looking forward to some months of developing prosperity and on all sides the future was regarded with confidence.

Unfortunately few of these expectations were realized, and for the past six months makers have been struggling to keep their heads above water. The domestic demand has been of some assistance, but the volume of export trade has been of little consequence. The inevitable result of the coal strike last year was that a part of the business normally coming to British works was diverted to other channels, particularly to the Continent, and in addition to foreign producers gaining a foothold in markets which hitherto had been considered as British preserves, more than 4,000,000 tons of semi-finished and finished material was imported. In fact, a continuous stream of iron and steel products of all kinds entered Great Britain throughout the year. Faced with this serious situation, British producers naturally have urged "protection," and it is still being discussed in many quarters.

### Efforts Made to Reduce Imports

Strong, but hitherto unsuccessful, efforts have been made to keep out foreign products, and representations have been made to Parliament for relief under the "Safeguarding of Industries Act." While the Government so far has been unwilling to act, it is by no means certain that this attitude may not be modified as increased pressure is brought to bear.

An influential group of the heavy steel makers has endeavored to stem the tide of imports and to encourage consumers to place their orders with domestic mills by granting them a rebate on a varying scale provided they fulfill certain obligations. However, the margin between the prices of British and foreign material is generally too great for the plan to be of much real assistance, although certain ship owners, swayed by patriotic rather than economic motives, have fallen into line and a number of new shipbuilding contracts have been booked. Railroad programs also have called for considerable quantities of material, but these do not compensate for the lack of export business, which is the mainstay of the industry.

A solution of the problem undoubtedly lies in a reduction of costs, but high wages, heavy taxation and

burdensome overhead charges are serious obstacles. Another suggestion for restoring the industry to its former position lies in the direction of syndicates and mergers, with the attendant scrapping of high-cost units in favor of the more economical plants.

### Competition of Foreign Iron Serious

The pig iron market has to a great extent suffered in a like manner. At the beginning of 1927 most furnaces had full order books and domestic users had closed heavy contracts for Continental pig iron, but once the sellers had cleared their books of the strike accumulation, they experienced much difficulty in securing new business. Throughout the year imports of pig iron were heavy, and for many months now the Scottish market, a very important outlet for Cleveland iron, has been virtually lost to the Middlesbrough furnaces.

Toward the end of the year the Cleveland producers evolved a plan of allowing a rebate of 2s. 6d. (61c.) per ton on sales for export and for Scotland, a decision which caused a great deal of dissatisfaction among other consumers and merchants. But this was only a preliminary to eliminating the Scottish merchant altogether, for at the end of November the Middlesbrough producers announced that in the future they would not sell iron to Scotland through merchants, but only through their own agency to be established in Glasgow. This agency is now operating, but whether or not it will be successful remains to be seen.

### British Mills Watch International Cartel

British iron and steel makers have had a watchful eye on Continental developments, especially the operation of the International Steel Cartel and the efforts of Germany to secure the establishment of international sales offices for various materials. That the established offices for certain products have not worked very satisfactorily, however, is evidenced by the collapse during the autumn of the International Wire Syndicate, while the Pig Iron Syndicate, because of the abstention of the German furnaces, has never been more than a loose agreement.

An International Wire Rod Cartel was eventually set up and is now operating, but there is still one large group not included. Throughout the year efforts were made to establish a cartel for semi-finished products and beams, but as a result of the inability of the Belgian producers, and to some extent of the French also, to reach an agreement among themselves, no real progress was possible.

The present outlook in the British iron and steel



trade is for better business in 1928 than in 1927, which indeed, was almost without exception one of the worst years financially ever experienced. Efforts will un-

doubtedly be made to curtail the volume of iron and steel imports, and British sellers will endeavor to re-establish themselves in certain foreign markets.

## Germany

**V**IEWING the extraordinary activity of the most prosperous year since the war, German mills are inclined to believe that, despite the continued heavy domestic demand, the end of this period of prosperity is approaching. Should their domestic market in 1928 cease to be the great factor that it was in 1927, German producers are prepared to seek again a larger foreign trade.

**T**HE past year was the most prosperous since the war, with general industry operating at maximum capacity and with the metal-consuming industries, including shipbuilding, machinery manufacture and building construction, unusually active. As a result of the extraordinarily heavy domestic demand for iron and steel, Germany temporarily became a large importer and a relatively smaller exporter. Throughout the year the blast furnaces and steel plants had orders booked for several months ahead, and unemployment in the metal-working branches of the labor unions declined from 16 per cent at the beginning of the year to about 4 per cent at the end.

Although coal production showed a slight decline during the year, the total output of coal probably exceeded the 1926 figure, with 114,400,000 metric tons mined in the first nine months compared with 104,600,000 tons in the same period of 1926. Export of coal at low prices was made possible by the profitable level of the domestic market, and competition with British sellers was severe, no progress having been made toward an international understanding.

Throughout the year the pig iron market was active, but in the second half, British competition began to be a factor in export sales. In exports of steel, the principal competition came from French and Belgian mills. In neither pig iron nor steel, however, did foreign competition affect the domestic market, but in the export field prices were made unprofitable and the limited tonnage of German steel that was available for shipment abroad was sold at much lower prices than prevailed at home. A system of rebates on material delivered by the steel syndicate to manufacturers converting for export was continued, the rebates increasing as the disparity between German and other Continental prices became greater.

### Establishment of 8-Hr. Day Postponed

With the iron and steel industry so unusually active labor became restive and there was a slight increase in strikes, but the steel mills were unaffected. Wages advanced steadily, but on the whole remained rather low. On Oct. 1, the average weekly wage of skilled workers in the iron and steel industry was 47.97 m., about \$11.40, and of unskilled labor, 33.31 m., about \$8. At the blast furnaces the 8-hr. day was in effect, but the steel mills continued on the 10-hr. day. In July the Government decreed the 8-hr. day for steel plants, to be adopted by Jan. 1, 1928. Claiming that the time allowed was too short for the necessary reorganization, the mills threatened toward the end of the year to suspend operation unless the time limit was extended. This resulted in objections by labor, and, finally, only a few days before the new year, the Ministry of Labor, while making no change in the 8-hr. day order, decided to postpone the effective date, especially for steel mills not employing the basic Bessemer process. Under the ruling, mills are permitted to apply for extension of time, provided they can show that it is impossible for them to comply with the conditions immediately. Meanwhile, the ministry will carry out an extended survey of the industry, which will probably require several months, during which there will be progressive application of the 8-hr. decree.

### Year of Heavy Production

Production in 1927 was in excess of 1926 output. Pig iron production in the first 10 months of 1927 was 10,833,463 metric tons as against 7,595,430 tons in the corresponding period of the previous year; steel ingot output was 13,537,954 metric tons as compared with

9,780,437 tons in 1926, and the production of rolled products was 10,687,093 tons as against 8,190,629 tons.

Prices of iron and steel in domestic markets changed but little. In the fall, pig iron quotations were reduced slightly, first as a result of competition from a German producer not a member of the pig iron syndicate and later because of competition from British iron. Apart from local price adjustments, the steel ingot price established by the Ingot Steel Syndicate at its foundation in 1925 was maintained without change.

One of the most active branches of the industry was iron mining, which had been severely depressed during 1926. The year saw a heavy demand for semi-finished material, bars, shapes, wire rods, wire and heavy and medium-gage sheets. Light-gage sheets were quiet and, as a result of sharp competition, prices later in the year developed a tendency toward weakness.

In foreign trade an export surplus was maintained, but it was considerably smaller than in 1926. During the first nine months of the year, imports of iron and steel totaled 2,070,359 metric tons, while exports were 3,489,001 tons, leaving an average monthly export surplus of 157,627 tons, compared with an average surplus in 1926 of 340,000 metric tons a month. The surplus of machinery exports over imports was more than maintained in 1927, with only 40,455 metric tons imported in nine months and 327,819 tons exported.

### Domestic Mergers and New Cartels Numerous

During the year, mergers of large companies continued and additional cartels and syndicates were formed in Germany. In the formation of international cartels, however, little was accomplished. The inclusion of German pig iron producers in the Franco-Belgian Pig Iron Entente was proposed, but no action was taken. The International Steel Cartel was something of a disappointment to the German membership. As it had failed completely to maintain profitable prices, it was decided in the fall that separate selling syndicates should be established for all products which the international cartel controlled, and negotiations are still under way with moderate prospect of success. In furtherance of this plan for separate syndicates, an International Wire Rod Cartel was formed during the year, but it did not become effective until late in the fall.

Some of the dissatisfaction of German members with the International Steel Cartel probably came from the heavy penalties for overproduction, which Germany had to pay into the treasury of the cartel. The fine fixed at the time the cartel was established in 1926 was \$4 per ton for all production in excess of the quota. In 1927 the cartel took into consideration the position of the German mills, which were being forced to overproduce to meet unusually heavy domestic demands, and for that part of the excess production consumed in the domestic market the fine was reduced to \$2 and later to \$1 per ton.

There have been several important company mergers, some of which were begun in 1926 but not completed until 1927. The Edelstahlwerke A. G. was established through a merger of producers of special quality steel, and two large corporations were established, one the Mitteldeutsche Stahlwerke, controlled by the Vereinigte Stahlwerke, the other the Oberschlesische Huettenwerke, a combination of Eastern companies. A close association, which is expected to develop into one or more corporations, was formed by 30 railroad car-building companies. Efforts to establish a thin-sheet syndicate failed, so that this product is the only important steel material with no association.

While preparatory investigations and hearings

began for reduction of the present tariff in accordance with recommendations of the Geneva Economic Conference, it is understood that iron and steel duties will not be changed.

Prospects for business in iron and steel during the coming year are considered doubtful. At the end of

1927 steel works had orders sufficient to occupy them for a number of months, but there were distinct signs of a slackening of demand. Should the domestic market become less active as the year progresses, German competition for orders in the international market will undoubtedly increase proportionately.

## France

**F**ACED with excessive stocks held by consumers, a result of the heavy buying movement which developed during the unstable financial situation of 1926, producers of iron and steel experienced a steadily declining market in 1927 until the closing months of the year. Greater exports aided in the maintenance of operations, but despite all efforts French producers were unable to reach the maximum of the quota allotted them by the International Steel Cartel.

**A**LTHOUGH 1927 was a year of greater financial stability, the gradual rise of the franc, which began in the fall of 1926, brought a slackening of business. In the past year there have been occasional upward movements, but in most cases these have been of short duration. Confidence in the financial future of the country has been restored, and there is no longer a desire to turn money into raw materials or manufactured products. The sudden change in the financial situation, however, found both producers and consumers with heavy stocks of material as a result of the large purchases made in 1926, when actual material was a far safer investment than paper francs of indeterminate value.

For most of the year consumers have been able to satisfy their requirements from these large stocks, with only occasional small purchases, and it was not until early in October that there was a slight improvement in domestic demand, accompanied by more firmness in prices. Following this temporary recovery, purchasing declined again, but there is still considerable strength to prices, largely on account of the belief of producers that the cessation of buying was caused by the holiday period.

### Year of Declining Prices

A comparison of domestic and export prices as of Dec. 1, 1926, and Dec. 1, 1927, shows a considerable decline in both in the intervening 12 months. In the domestic field phosphoric foundry iron receded from 587 fr. (\$23.07) per metric ton to 420 fr. (\$16.50) per metric ton, and hematite has dropped from 690 fr. (\$27.12) to 535 fr. (\$21.03) per ton. Thomas steel billets, which were quoted at 780 fr. (\$30.65) per ton in December, 1926, declined to 485 fr. (\$19.06) per ton in December, 1927. Merchant steel bars, which were 860 fr. per metric ton (1.53c. per lb.), reached 560 fr. per ton (1c. per lb.) in December, 1927. Other products show corresponding reductions.

Export prices also registered a decline in the 12 months. Phosphoric foundry iron, which was £4 5s. (\$20.74) per ton, f.o.b. Antwerp, Dec. 1, 1926, was only £3 to £3 2s. (\$14.64 to \$15.13) Dec. 1, 1927. Thomas steel blooms dropped from £4 12s. 6d. (\$22.57) to £3 17s. 6d. (\$18.91) per ton, and billets from £5 4s. (\$25.38) to £4 3s. 6d. (\$20.37) per ton. Beams, which were £5 11s. 6d. to £5 12s. 6d. per ton (1.23c. to 1.24c. per lb.) in December, 1926, dropped to £4 7s. to £4 8s. 6d. per ton, (0.98c. to 0.99c. per lb.). Thomas steel bars declined from £5 12s. 6d. (1.23c. per lb.) to about £4 15s. per ton, (1.05c. per lb.). Even the low prices of Dec. 1, 1927, were not the minimum quotations of the year, the lowest levels in most products having been reached in October and early November, after which there was a slight recovery caused by increased buying preceding the holiday period.

### Steel Cartel Only Partial Success

Despite its lack of anything like effective control over Continental market conditions, the International Steel Cartel, established Sept. 30, 1926, added several of the smaller producing countries in Europe to its membership in 1927, so that today it includes a good share of the steel industry of the Continent and its meetings attract wide attention. However, as an agency for controlling steel production and, indirectly, prices, it has given only partial satisfaction to its mem-

bership. Germany, to meet the demands of its domestic market, exceeded the cartel quota throughout the year and, as a consequence, was fined for output in excess of its allotment. French producers, on the other hand, were unable to reach the maximum quota allowed them, but even with reduced output, production was larger than demand.

As a solution there has been an effort to establish separate selling syndicates or ententes to control certain products. The European Rail Makers' Association, which was in existence prior to formation of the International Steel Syndicate, has apparently been functioning reasonably well, and in October, following long negotiations, the International Wire Rod Cartel was formed. The most desirable of separate syndicates, however, would be agencies for handling semi-finished material, bars and beams, and with their formation in view numerous meetings were held during the year. There is a growing belief among producers that, unless they enter international selling syndicates, there is little prospect of stronger prices, especially for export.

### Iron Ore Output Shows Increase

Production of iron and steel in 1927 is estimated to have been slightly smaller than in 1926. Ore output, however, is estimated to have been in excess of the 1926 output, with an estimated total production for the 12 months of about 43,700,000 metric tons, based on a monthly average of 3,649,000 tons for the first nine months of the year. The monthly average in 1926 was 3,213,000 tons.

### Iron and Steel Production Smaller

During the year the number of blast furnaces in the country increased by three, to a total of 220. Based on an average monthly output of 773,700 metric tons, the total pig iron production for the 12 months is estimated at 9,300,000 tons, or slightly less than the 9,393,000 tons in 1926.

Steel ingot output is also estimated at slightly less than the 1926 total. On the basis of statistics for 10 months, the production for the entire year is estimated at 8,230,000 tons, compared with 8,380,000 tons in 1926.

### Imports Smaller and Exports Increase

Imports of pig iron and ferroalloys were larger in 1927 than in 1926, 30,034 metric tons of pig iron having been received in the first 10 months as compared with 20,700 tons in the corresponding period in 1926, while receipts of ferroalloys were 24,554 tons and 18,486 tons respectively. Imports of rails were also larger than in the previous year, but receipts of steel ingots, semi-finished material, bars, hoops, sheets and wire rods all registered considerable declines.

Export tonnages were all larger than in 1926. A total of 715,219 tons of pig iron was exported, compared with 555,958 tons in 10 months of 1926. Shipments of pig iron to the United States were only 2976 tons in 10 months of 1927, compared with 22,493 tons in 1926. Exports of semi-finished material, beams and bars to the United States were slightly larger than in 1926. Of a total of 2,386,710 metric tons exported in 10 months, the United States received 36,362 tons. This compares with 31,782 tons shipped to the United States in the corresponding 10 months of 1926 out of total exports of 1,612,495 tons.



# Business Analysis and Forecast

BY DR. LEWIS H. HANEY

DIRECTOR, NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

## Statistical Data Concerning the Chief Consuming Industries Indicate That:

Activity in chief consuming industries has been fairly well sustained, though spotty.

Car and locomotive buying in December made a large gain over recent stagnation.

Automobile production declined 20 per cent in November; general manufacturing in other lines fell off only 4 per cent.

Building volume continues large; industrial building is relatively small; structural sales have held up, making 1927 the best year, except for 1925.

Outlook for pipe in petroleum States should improve, as present activity is at about bottom; mining demand has not been good.

Iron and steel exports have helped out somewhat; imports are less than a year ago.

**D**EMAND has two aspects, namely, quantity and value. To be really strong, demand must involve large quantities and also a readiness on the part of buyers to pay a good price. This generalization is stated here for the reason that the only improvement in the demand for steel seems to lie in the quantity that consumers are willing to take, and on the whole the steel market is still a "buyers' market." We are on record as anticipating a stronger demand early in 1928, and still expect such a development. The rising trend in unfilled orders results from a continued fair volume of new business and a moderate production. Together with prospects of a general business improvement, they make an upturn in the steel business probable.

It must be recognized, however, that no real strength of a sustained character is to be expected in the steel markets until the business of the chief consuming industries picks up. Of this there is not yet much evidence. There has been a spurt in equipment buying and prospects for expansion in automobile production are quite definite, but that is about all. It is to be hoped meanwhile that the steel makers will not become too optimistic in anticipating expanded buying, for if they do they will continue to find the price side of demand unsatisfactory. (This observation seems pertinent, because of the upward trend of steel production in December.)

### Production Adjusted to Steel Demand

**O**UR composite demand line, based on an estimate of the activity of the chief iron and steel consuming industries, declined in November to the lowest point since

the latter part of 1924. This fact amply explains the slackening in the steel business in that month and the accompanying decline in production. Fortunately, however, it can again be stated that the production of steel ingots appears to have been amply adjusted to requirements. In other words, the production curve in the first chart lies well below the composite demand line. Indeed, there is some reason to believe that the actual buying of steel a few months ago was even less than the activity in the consuming industries would normally have required, and that in the last two months orders and sales have been better than the current activity in those industries would have indicated.

Declines of considerable magnitude occurred in railroad freight traffic, in manufacturing activity, and in the automobile industry in particular. General manufacturing, excluding the automobile industry, declined about 4 per cent more than usual in November, while the decline in the automobile industry was over 20 per cent. On the other hand, mining (including petroleum production) gained more than usual for the season, and machine tool orders showed an appreciable upward trend. Exports of iron and steel in November were up slightly more than usual.

### Conditions in Particular Industries

The outlook for the near future is moderately encouraging. There has already been a good recovery in the buying of *railroad equipment*, which proves that the carriers had postponed some necessary purchases. It continues to seem highly probable that equipment buying will be better in 1928 than in 1927 and that a considerable gain will develop by spring, when railroad

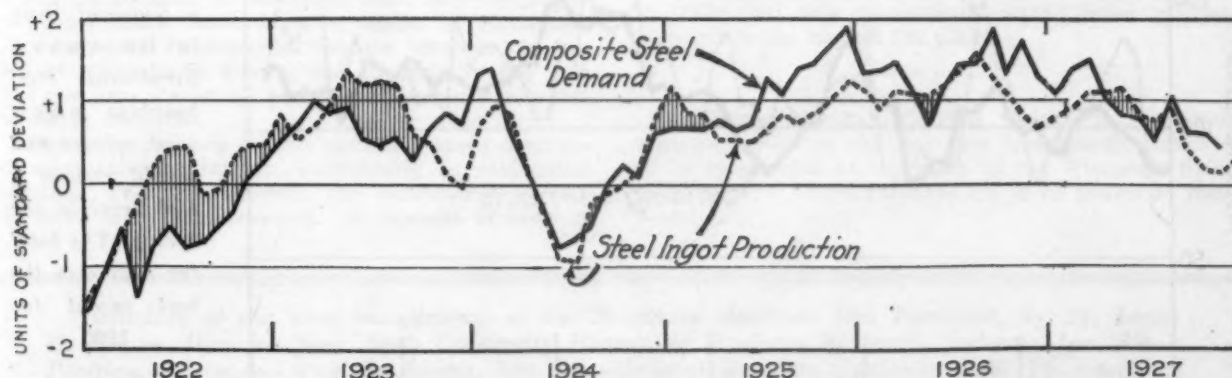


Fig. 1—Current Steel Production Is Still Below the Curve of Composite Demand, Which Has Fallen to the Lowest Point Since 1924. The outlook for the near future is moderately encouraging

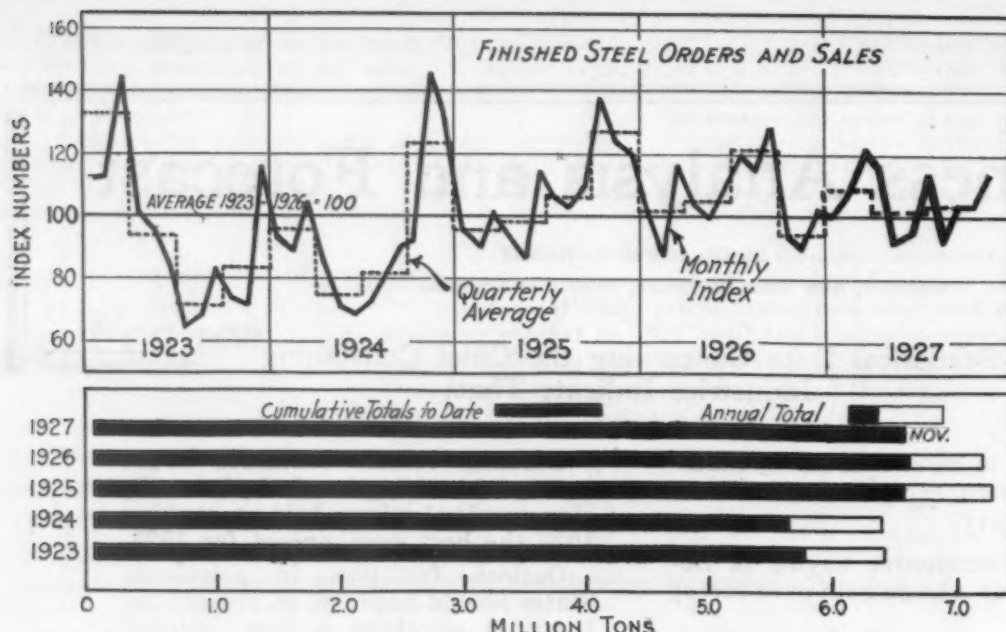


Fig. 2—For the First Time Since 1924 the Trend from August to December Has Been Upward in Sales of Finished Steel. The fourth quarter may equal the first

traffic should be on the up-grade. For the present, however, it is to be remembered that not only is traffic small and earnings much reduced (only 3.7 per cent annual rate on the investment in November), but that the surplus of equipment available is also rather large.

Building activity promises to continue in about normal volume. Automobile production is almost certain to expand considerably in the spring. Great sales effort and production programs are already in evidence and the recent wave of price cutting at least promises numerous sales. Probably the hopes of all automobile manufacturers cannot be realized and severe competition is almost a foregone conclusion. The prospect is for a large volume of automobile steel, but with a great pressure from the manufacturers for low prices.

General manufacturing (excluding the iron and steel and automobile industries) was sharply lower in November and will probably show a further decline in December. It has fallen below normal. In general, however, supplies of commodities are rather small and, as retail trade continues to show large consumer buying, and as our business barometers indicate improvement during the first half of the year, it seems that the steel industry should benefit.

Both the mining and oil industries appear to be fairly well stabilized but, as everyone knows, are in a depressed condition. Gradual improvement is to be expected in the oil and copper industries at least. The gasoline situation is fundamentally strong, but supplies of crude petroleum and fuel oil are so large that it will be the part of wisdom to restrict drilling operations for some time.

Agriculture continues to show moderate improve-

ment and affords favorable prospects to the manufacturers of agricultural machinery and implements, which should mean continued good buying of steel from that quarter.

The expansion of steel production abroad makes it continue probable that exports will be irregular, and sustained only by making low prices. A continued good volume of foreign trade in automobiles and machinery, however, will help to sustain the demand from domestic manufacturers.

#### Orders and Sales May Have Exceeded 1926

SALES of finished steel made a rather good showing in the latter part of 1927—at least insofar as tons are concerned. A little study of the second chart will demonstrate that this is the first year since 1924 that the trend between August and December has been upward, or that it could be said that November orders were the largest since July. The upswing has not been nearly so sharp as in 1924—that could hardly be expected, in view of the well sustained volume during the past year—but it has nevertheless been clear-cut.

The December figure, of course, is still uncertain, but it seems possible that the orders and sales may show a further gain in that month and may even equal the March volume. In that event, the fourth quarter total may be as large as, or larger than, the first quarter. If so, that will constitute a very favorable indication. Reasons for moderate optimism concerning the December figures are found in current reports of large equipment orders and in a large gain in the unfilled orders for steel sheets. There is reason to suppose that increased business for car and locomotive

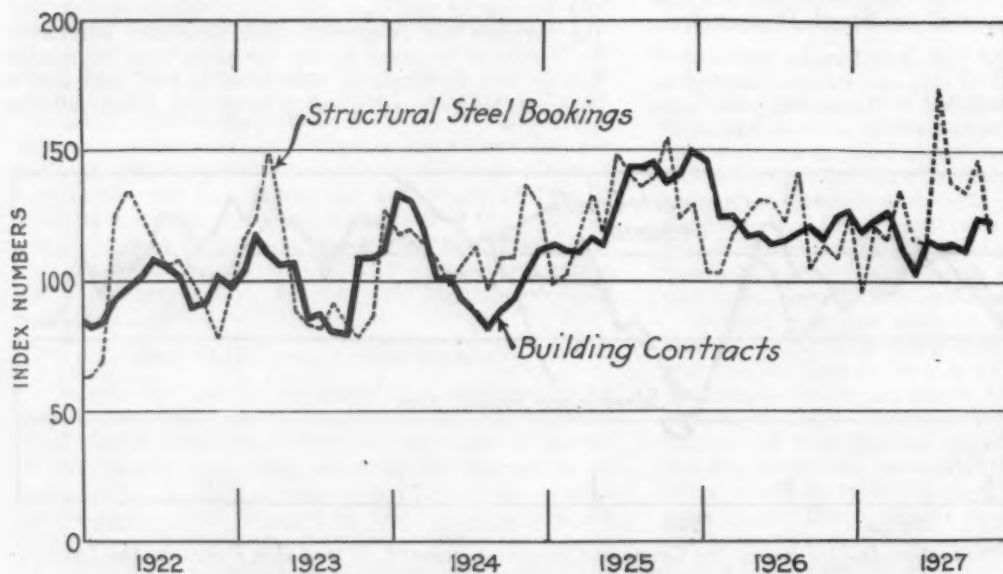


Fig. 3—Building Contracts Showed a Seasonal Drop in December. Structural steel bookings show good volume and should resume a high level in the spring. The total for 1927 was the best except for 1925



manufacturers and expanded programs of automobile manufacturers will have been reflected in the December steel business. Coupled with a good volume of structural steel business in that month, these facts indicate a gain.

#### Production Has Been Moderated to Demand

It follows also that our estimate of orders and sales for the year 1927 may equal or even exceed the 1926 total. This would mean that the quantity of plates, steel castings, sheets and fabricated structural steel sold has been well sustained. It would also mean that, in view of the decreased ingot production, the stocks of steel have probably been reduced. It tends to confirm indications given by our composite demand line to the effect that the production of steel has been moderate in comparison with the demand.

November sheet sales increased and were the largest of any month of the year except March. The bookings of steel castings also gained but, though the tonnage was the largest since July, it still was rather

per cent in building contracts (floor space) is normal for December, and total contracts awarded last month were not that much below November. Our adjusted index is 125.6 per cent of the average for 1921-25, against 122.9 in November, and 127.4 a year ago. It is now certain that the year ended a little lower than did 1926 and, of course, much below the peak reached at the end of 1925, when the index was 150.4. The total volume of the year, however, may fairly be called good

#### Large Structural Steel Sales

This showing for the year is due to the large volume of public works, bridges, roads and miscellaneous industrial construction. The situation is clearly illustrated in the unusually wide divergence of the structural bookings from the total building contracts awarded between June and November. Total structural steel sales in 1927 have been exceeded only in 1925.

The outlook for the first half of 1928 is good. Though some tightening of money rates is to be ex-

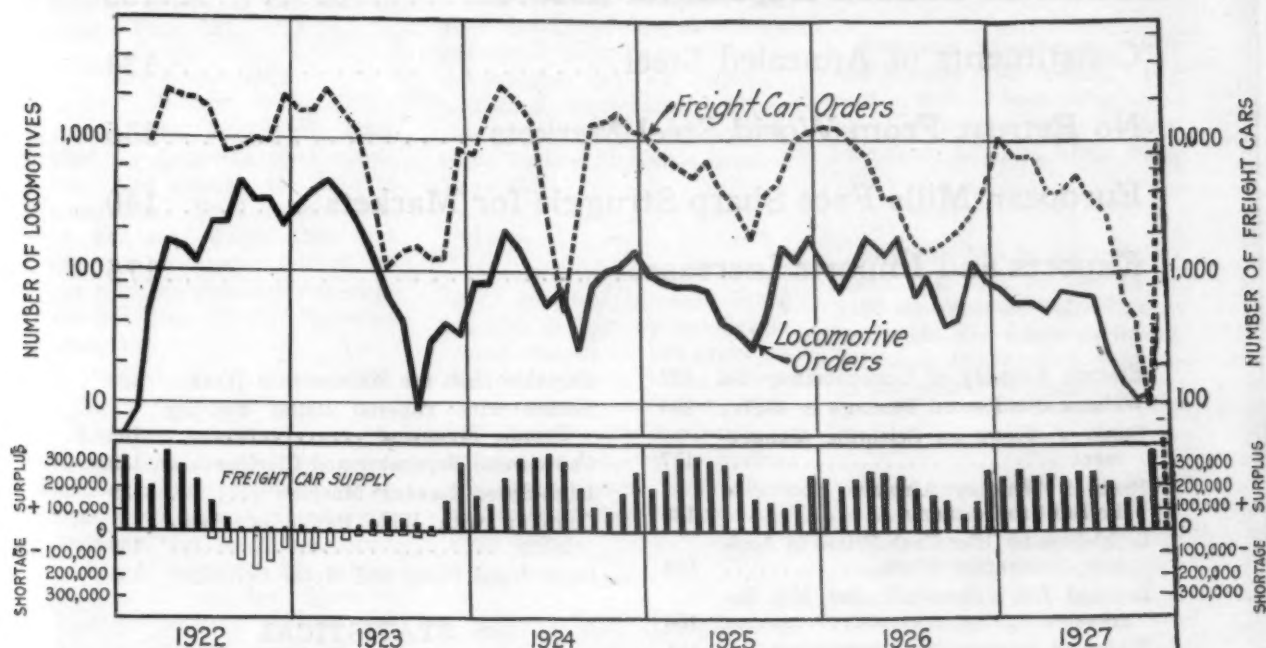


Fig. 4—Locomotive and Railroad Car Orders Gained Decidedly in December, as Forecast a Month Ago, with Consequent Betterment in Demand for Certain Steel Products

small for the season. There is every preliminary indication of a further increase in December. Fabricated structural steel awards declined in November. Though considerably above a year ago, the 213,100 tons made a good showing. Judging by weekly trade reports, the official figures for December awards should show an appreciable increase. The poorest showing was made in the case of fabricated plates. It remains to be seen whether the spurt in equipment buying will be reflected in the December business in this line.

#### Construction Has Held Up Well

TWO curves, showing the trends of building contracts and the bookings of structural steel, as presented in the third chart, came together again in November. Once more the fundamental relation between the two sets of statistics is shown, and incidentally the fact that the two statistical series are fundamentally accurate is indicated.

December building figures showed a large decrease in speculative operations, particularly in residential building. Probably, however, the December drop was not much more than seasonal. A decrease of over 10

per cent in the spring, the money markets are easy at present and are likely to continue so during January. The considerable let-up in speculative building during 1927 is likely to be followed by a more normal growth this year, especially as the outlook for agricultural sections seems good and the well-being of the general mass of the people is well sustained.

#### Car and Locomotive Orders Pick Up

AS shown in the fourth chart, orders for railroad equipment gained decidedly in December. Official figures indicate an increase in locomotive unfilled orders, in spite of larger shipments. It seems reasonable to infer that this development should bring greater strength to the market for plates.

McClintic Marshall Co. has started to erect the structural steel at the two new open-hearth furnaces to be constructed at the plant of the Wisconsin Steel Co., Chicago. These furnaces are to be known as Nos. 6 and 7.

Schedule of the next installments of the *Business Analysis and Forecast*, by Dr. Lewis H. Haney, Director New York University Bureau of Business Research, follows: Jan. 19—Position of Iron and Steel Producers; Jan. 26—General Business Outlook; Feb. 16—Activity in Steel Consuming Industries.

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# This Issue in Brief

Better forgings produced by charging billets into cool furnaces. Charging into a hot furnace often produces internal ruptures. Locomotive builder varies soaking time and rate of temperature increase in accordance with cross-section of the material, keeping a detailed record of the heating cycle.—Page 127.

1927 was best year since 1920 for Canadian steel industry. And outlook for 1928 is promising. Steel output was 12 per cent above 1926, but pig iron production fell off 5.5 per cent, due principally to competition from United States.—Page 133.

Lamellar pearlite is not the normal condition of the eutectoid in slowly cooled plain carbon steels, says metallurgist. Declares text books are incorrect, and supports his contention by micrographs. Spheroidized or massive pearlite may be produced in steels of any carbon content by proper anneals, he declares.—Page 134.

American machinery increasingly popular abroad. Exports for first 11 months show increase of 30 million dollars over same period of 1926, a gain of more than 8 per cent.—Page 177.

Abandon export steel business, urges American banker. This would help Europe recover and would make for international economic recovery, he declares. Steel exporter points out that Europe's export steel trade is progressing very nicely, even with the small share of business we are taking. The loss of this business, representing about 5 per cent of our output, might throw many Americans out of employment, and would increase our costs of manufacture.—Page 136.

Dr. Haney warns steel makers against over-optimism in anticipating expanded buying. Otherwise the price side of demand will continue to be unsatisfactory.—Page 143.

Anti-friction bearings, applied to railroad cars, show high resistance to impact. Nickel-molybdenum steel bearings withstand temperatures above the atmospheric without a rapid decline in elastic limit.—Page 131.

Price cuts in automobiles will result in great pressure being brought to bear by automobile manufacturers for low prices on raw materials, says Dr. Haney. The prospects are that along with considerable expansion in automotive industry by spring, will come severe competition and insistence on low prices.—Page 144.

End of their prosperity is approaching, German iron and steel makers believe. Heavy domestic demand gave the German iron and steel industry the most prosperous year since the war. They are prepared to seek again a larger foreign trade, when home sales lessen.—Page 141.

Cuts forging billets exact length required, and thereby reduces heating costs. By this practice, locomotive builder also reduces to a minimum the amount of waste crop ends and uncovers any hidden piping.—Page 128.

Finished steel sales show upward trend from August to December for first time since 1924. Sales made a rather good showing in latter part of 1927, says Dr. Haney, and fourth quarter may have been as large, even larger, than the first.—Page 144.

Will England be forced to abandon her free trade policy with regard to steel? English iron and steel industry has suffered heavily from imports, and is bringing strong pressure to bear on Parliament to provide "protection."—Page 140.

American exports of rolled and finished steel fell off 6 per cent in first 11 months as compared with 1926, while imports increased 1.5 per cent.—Page 175.

Sharp decline in pig iron imports. In first 11 months of 1926 we imported 430,990 gross tons. In the same period of 1927 only 118,769 tons came into the country.—Page 175.

More than a half million ton gain in Steel Corporation's unfilled orders. Total at Dec. 31 was 3,972,874 tons, highest since March, 1927. Increase in December of 518,430 tons was greatest monthly gain in three years.—Page 163.

Avoids tong scrap in making heavy forgings, by turning forging end for end. Manipulator moves and revolves the ingot or billet in the press, to the varied positions required. When one end is finished, the forging is placed on a turntable and the ends reversed.—Page 128.

Gain of 50 per cent in machine tool exports over 1926. Shipments for first 11 months of 1927 were valued at \$9,897,000, as compared with \$6,408,000 for same period of 1926.—Page 177.

Steel output increased 1.6 per cent in December. Average daily rate was 121,167 gross tons, as compared with 119,299 tons in November.—Page 167C.

ESTABLISHED 1855

# THE IRON AGE

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Member of the Audit Bureau of Circulations and of  
Associated Business Papers, Inc.

Published every Thursday by the IRON AGE PUBLISHING CO., 239 West 39th Street, New York  
C. S. BAUR, *General Advertising Manager*

F. J. Frank, *President*

George H. Griffiths, *Secretary*

Owned by the United Publishers Corporation, 239 West 39th Street, New York. A. C. Pearson, *Chairman*. F. J. Frank, *Pres.* C. A. Musselman, *Vice-Pres.* Fred C. Stevens, *Treas.* H. J. Redfield, *Secy.*

BRANCH OFFICES—Chicago: Otis Building. Pittsburgh: Park Building. Boston: 425 Park Square Building. Philadelphia: 1402 Widener Building. Cleveland: 1362 Hanna

Building. Detroit: 7338 Woodward Ave. Cincinnati: 408 Union Central Building. Buffalo: 835 Ellicott Square. Washington: 536 Investment Building. San Francisco: 320 Market St.

Subscription Price: United States and Possessions, Mexico, Cuba, \$6.00; Canada, \$8.50; Foreign, \$12.00 per year. Single Copy 25 cents.

Entered as second-class matter, June 18, 1879, at the Post Office at New York, N. Y., under the Act of March 3, 1879.  
PRINTED IN U. S. A.

## Shall We Stop Steel Exports?

FOR inscrutable lack of Americanism, naive willingness to become almoner of the property and labors of others, and for fiscal and economic statesmanship well worthy to bear the label "made in Germany," commend us to the proposal that the United States retire in favor of Europe from the steel markets of the world. Here for years the policy of increasing our trade with foreign lands in all that we produce has been held up as patriotic and in all ways desirable. Administrations at Washington have come and gone; but whatever the party in power, there has been an unvarying pressure upon the country's consular agents in every quarter of the globe to exert themselves to the utmost to increase the use of American products to the largest possible extent. The American manufacturer, or his agent, as he has crossed oceans to cultivate trade relations with white men, black men, yellow men and brown men, in whatever country or clime, has had cooperation in any and all ways, of our Government's representatives abroad.

At Washington, all appropriations committees, whether under Democratic or Republican control, have vied with each other in making large outlays for the extension of the work of the Department of Commerce. Nothing has ever developed, in all these years of persistent effort to increase American exports, indicating that the expansion of the use of American steel in foreign countries was not an achievement ranking as high as any other in the campaign for a larger place for the products of American invention and labor in the lives of distant peoples. And men in the steel trade have not forgotten that back in 1915, when the United States Circuit Court of Appeals gave its decision at Trenton, refusing the Government's petition to dissolve the Steel Corporation, great stress was put by the court on the corporation's contention that the building up of an export trade in steel was one of the main reasons for forming a consolidation completely integrating all the materials and processes necessary for the manufacture of all forms of finished steel.

It need hardly be said that all the thinking of American men of business on this subject has been one way and that their pride in the building up of foreign markets for our steel products is just that which they have taken in every other advance of American trade in foreign lands. When they read recently that a New York banker had publicly advocated that our steel manufacturers retire from foreign steel markets, so that European steel companies might have undisputed possession, it was natural that a motive should be sought for so amazing a proposal. Certainly the reasons given, as reviewed in the article on another page, are far from adequate explanation—about as far from being adequate, indeed, as the statements concerning conditions in the American steel trade are from the actual facts.

Something more than \$100,000,000 of securities of European steel companies have been marketed in the United States, far the larger part of the proceeds going to Germany. Is it seriously urged that the interests of these stockholders should outweigh those of the tens of thousands of American steel workers engaged in the production of export steel, or of the thousands of holders of stocks in companies which have built up our foreign trade in steel?

Do these workers and these holders of domestic steel securities agree that the European situation calls for such a policy of scuttle by the men whose high enterprise has won for American steel the favor in which it stands today in the markets of the world? If it is decided that this country should do more than it has already done in helping Europe, why ask a single industry to make the contribution? Let the whole people be generous together.

PANAMA Canal traffic has reached such volume, and shows such a steadily rising trend, that serious thought is being given to the probability that transisthmian carrying capacity will have to be increased in the near future. Whether this will take the form of an additional flight of locks at Panama, paralleling the dual flights now in use, is



undecided. There are many who believe that in the interests of strategic safety an entirely new canal should be built, at a different location. Naturally, the Nicaragua route comes to mind, because it once was almost decided upon instead of that at Panama. And the United States Government has an option on that route. A far look ahead is called for. But no longer will the question of cost be paramount, for the Panama Canal, despite its enormous costs of construction, is now paying a good dividend.

### Smaller Steel Companies Grow

IT may have been noticed that in the annual summaries of new construction published by THE IRON AGE the largest steel companies have been conspicuous by their almost complete absence from the lists of builders of new steel-making capacity. In the summary for 1927, which appeared a week ago, the largest new construction was by the Ford Motor Co., and not one of the six largest steel companies appeared at all. The case was not exceptional. A summary of the annual reports covering the nine post-war years shows that these six companies contributed scarcely more than 25 per cent of the total new construction for steel making, yet these six companies represent 85 per cent or more of the total steel production.

By no means should it be inferred that these large steel makers were backward in making improvements, for the case in general was quite otherwise. Their efforts were directed to refinements and economies through the improvement of existing plant, and there is no doubt that their actual ability to make steel was increased. The point is that, despite the large capacity that was left at the end of the war, the highly competitive condition and the heavy cost of construction, smaller companies have been able and have seen fit to grow.

Just as was the case for years after the Steel Corporation was formed twenty-seven years ago, when "the independents" grew apace, so in these recent years the smaller producers have been growing more rapidly than the larger producers.

According to our annual summaries, new construction of steel-making units in the nine years 1919 to 1927 inclusive gave new capacity capable of producing 5,105,000 gross tons in a year. A small portion of this was in open-hearth furnaces for steel castings, and there was also the United States Government construction at Charleston, W. Va. The total steel ingot capacity was approximately 5,000,000 tons. The largest companies contributed only the following:

Steel Corporation .....	650,000
Bethlehem .....	400,000
Inland .....	250,000
Republic .....	50,000

Total .....1,350,000

Neither the Youngstown Sheet & Tube Co. nor the Jones & Laughlin Steel Corporation appeared at all. The six companies contributed about 27 per cent of the grand total. In 1922 there was some new construction by the Steel & Tube Co. of America, absorbed the following year by the Youngstown Sheet & Tube Co.

Conspicuous among contributors to the remaining 73 per cent was the Weirton Steel Co., which only began building its steel plant in 1919, but now

has seven 100-ton and four 200-ton open-hearth furnaces, representing not far from one-fourth of all the post-war new construction there has been. Then there are the Ford Motor Co., with about 400,000 tons, Colorado Fuel & Iron Co., McKinney, Andrews, Lukens, Interstate, Mansfield, Otis, Wisconsin, Trumbull and others.

Moreover, the new construction by the larger companies was chiefly special in character. The Steel Corporation's new construction, but one-eighth of the total, was confined to Gary, Ind., and Fairfield, Ala. Bethlehem's was only at Sparrows Point.

We do not have here a case of the large growing larger. If they grow stronger it is due to their refinements and reductions in costs through getting greater outputs from existing units.

### Poisons for Metal

LUCKY is the blast furnace operator who has not been blamed at some time or other for unsatisfactory steel made from his pig iron. Even though the sulphur and phosphorus were within the specification, something "poisoned" the metal beyond the ability of the open-hearth to cure. Nitrogen is often blamed, although it is possible that this gets into the steel from case-hardened scrap. With specifications for physical properties and surface finish becoming constantly more severe, the steel maker must turn his attention to both the pig iron and the scrap he uses. So much alloy steel is coming back to the furnaces from wrecked automobiles and scrapped war equipment that the "pick-up" of nickel, chromium and other elements is influencing the resulting steel.

This problem is not alone with the steel maker. The user of secondary metals in the non-ferrous industry is also facing it. His troubles range all the way from innocuous nickel in brass (picked up from nickel-plated articles), and from antimony getting into bearing bronzes from particles of babbitt to real poison like aluminum coming from various sources into bronze fittings for high-pressure service.

The word poison is used with some hesitation, despite its common colloquial use. Also W. A. Forbes, in the paper on the "Technical Problems of the Steel Industry," presented before the last American Iron and Steel Institute meeting, devoted some space to the properties of the ferrite grain and the action of certain unspecified "poisons." Nevertheless, the word should be used with caution, for it is impossible to range all the elements into categories, one of which would be called poisons and the other foods. As recalled recently in these columns, manganese has too long borne an undeserved reputation as an undesirable citizen. Furthermore, aluminum, while ruinous to steam-tight brasses, is a very useful foundry addition to other analyses frequently cast into plumbing fittings.

Such are the manifold and various ways in which metals and alloys are influenced that it is not surprising to note the trend in recent metallurgical research toward the production of large metallic crystals of extreme purity. Only by knowing what are the properties of each metal in its utmost simplicity can the effect of each additive element be measured. Eventually we may be able to predict

when and how an alloying element is poisonous—that is to say, modifying the original properties for the worse—or a food, enabling the metal to grow stronger and better. Or it may be found that such prediction is possible only in certain rare instances. But the day when all such things are known is far distant. In the meantime much precise and painstaking work will be needed, taxing the best ability to perform and interpret. Furthermore, specifications must frequently be adjusted, as the supposed effect of certain elements or treatments is found to be wrongly appraised, either from over-emphasis or entire neglect.

### Small Growth in Coal Tonnage

**P**RODUCTION of anthracite and bituminous coal in the United States last year was substantially the even amount of 600,000,000 net tons, and as closely as can be estimated stocks were the same at the end of the year as at the beginning. There was about 21,000,000 tons excess of exports over imports, so that the apparent consumption of coal in the United States, including coal coked, was about 580,000,000 tons. Consumption in 1926 was approximately 614,000,000 tons, so that there was a decrease of about 34,000,000 tons or 5 to 6 per cent. The decrease in production was about 9 per cent. As is well known, there were unusual exports in 1926 and some stocking in anticipation of the coal strike.

The decrease in coal consumption from 1926 to 1927 need not be dwelt upon, as that decrease was small and very close figuring is impossible. We have the long range comparison, which is accurate and measures important trends of progress in coal economy.

Last's year's total coal production of 600,000,000 net tons was exceeded in five preceding years—1917, 1918, 1920, 1923 and 1926. As early as 1910 production was 500,000,000 tons, and the average production in four years, 1910 to 1913 inclusive, was 520,000,000 tons. There is an increase of 1 per cent a year, over a period long enough to be indicative of the general trend. In the twenty years preceding, or from the quadrennium through 1893 to the quadrennium through 1913, there had been an annual average increment of 5.7 per cent.

In sharp contrast with this slowing down, almost to the vanishing point, in the increase in coal consumption, is the fact that the power requirements of the country have been rapidly increasing in these recent years.

It is not a case of water power making serious inroads upon coal consumption. Hydraulic power largely creates its market, and the present developed water power is only about 12,000,000 hp., or 21 per cent of the total primary power, with 5 or 6 per cent being internal combustion power and the remainder steam, out of a total of about 57,000,000 hp. of primary power, excluding steam railroads, as ascertained by the Federal Power Commission.

The almost stationary volume of coal production, with steadily increasing service obtained from coal, in power generation, metallurgical and other operations and in heating of buildings of all sorts, is representative of steady and important improvement in methods of utilization. This will continue, both because much utilization is still far below

the best standard, and because from year to year the best standards are improved.

The futility of expecting growth in coal demand to do anything at all toward righting the miserable situation that exists as to the production and marketing of coal is obvious. The best mines will in fact increase in tonnage. The solution has yet to be found. There is no economic barrier of the public being unable to pay higher prices for coal. A ton of coal renders so much more service than formerly that its intrinsic value is increased. We have it, in fact, that coal can be produced more cheaply than at present, when mine operation is so irregular, and the public is well able to pay more money for coal. Thus there is ample latitude for the solution of a problem which accumulating years of experience suggest is incapable of solving itself.

### Hazards of Employee Stock Ownership

**O**WNSHIP by 800,000 American employees of a billion dollars worth of their companies' securities, an average of \$1,250 per employee stockholder, may carry with it occasional instances of hazardous investment, in the opinion of the National Industrial Conference Board, which has made a study of employee stock purchase plans. For this reason some corporations have avoided responsibility by distributing their employees' investments in the securities of a group of companies, instead of putting all the eggs in one basket.

The chief benefit from the sale of stock to employees, the report states, lies in promoting the habit of saving. This is more important even than the direct influence which stock ownership may exert on the employee's interest in the company's affairs and his attitude toward the management. The purchase of stock helps wage earners to provide against old age, it aids them in acquiring an independent source of income during the active years of their earning capacity. The feeling of security obtained through such savings, many employers reported, definitely reflects itself in the quality of their products.

As to hazards of investing in industrial securities, where such investments represent life savings, the report states that certain risks in employee stock purchase plans are found to exist, particularly those due to general fluctuations in the securities market, although a few companies have taken measures to protect employee stockholders against declines in the market price. There is also always the chance of the employing company's business declining, in which case the employee's stock likewise may fall in market value and yield.

It is to overcome this latter risk, the board finds, that some companies have devised plans under which employees may buy securities of various other companies as well as their own, thus diversifying the investment so that it will not be wholly dependent upon the fortunes of the employing company. Such plans, in some instances, have resulted in heavy stock purchases during recent years.

Securities of certain industries, where the product is not a staple need and the demand is subject to sharp fluctuations, may be subject to considerable risk. For instance, textile mills that specialize on certain kinds of dress goods may be



thrown into idleness by a whim of fashion, as has happened in more than one case in the past few years. In other industries the buying of raw materials involves a speculative factor because of rapid declines or advances in prices. But in indus-

tries where no violently disturbing element beyond a change in the degree of national prosperity is to be feared, and where management is capable, no employee need fear that his savings are not wisely and safely invested.

## CORRESPONDENCE

### Ethics of Engineering Contracting

*To the Editor:* There is a growing tendency on the part of most buyers to violate what engineering contracting companies have termed the "buyers' code of ethics." This has become particularly acute in the last 10 years, or, in other words, since the war.

In placing large contracts, involving considerable engineering and manufacturing skill, the procedure usually is as follows:

The purchaser, having only a meager idea of what is necessary to meet his requirements, first submits his problem to several of the engineering contracting companies in a brief specification, outlining in general terms what the machinery is to accomplish and asking that recommendations and bids be submitted accompanied by complete specifications with drawings in sufficient detail to show what is proposed.

The very best talent is required to design the required machinery, draw the specifications and make proposal drawings detailed sufficiently so that bids may be compared and analyzed.

Conferences between the bidders and the purchaser are usually held both preceding and following such bids, at which ideas are exchanged, but always at the expense of the bidders.

When all bids are received and analyzed the purchaser discovers that there is one, or perhaps two, unusual and outstanding designs which fully meet the requirements, while the others are ordinary and not worth considering. The prices for the unusual designs, however, are higher per pound than the prices for the ordinary and worthless; so the purchaser selects the unusual design, but rejects the bids.

New inquiries incorporating the unusual design and specifications thus appropriated are then submitted to builders of this class of machinery and also to "jobbing manufacturers" not capable or qualified to submit a design and proposition on the original inquiry. This enables the jobbing manufacturer with a small shop, with no engineering staff overhead, and who has nothing to contribute to the general fund of engineering, to underbid the reputable engineering contractors, with the result that the purchaser then either offers the business to one or more of the experienced builders at the low price, or, rather than pay more than the lowest pound price, actually places the contract with the inexperienced and improperly manned shop. In the latter case the final result is usually a loss to the inexperienced jobbing shop and the delivery of unsatisfactory equipment to the purchaser, all of which would have been avoided if the contract had been placed with a reputable builder at a fair price.

This method of buying, in the long run, is also harmful to the buyer. It eliminates competition by weakening the leading firms, which, in most cases, are substantial buyers of the products of the purchaser. It kills the initiative of leaders in improving designs, and makes it impossible for engineering contracting firms subjected to such unfair competition to carry the necessary staff of trained engineers to develop new lines. In other words, if pound price is the ultimate determining

factor in purchasing, what advantage is there in offering specially designed and more efficient equipment?

It is possible for a builder to copyright his drawings, but this is rather impracticable. He can cover special features by patents. However, unless such patents are basic, they are of little value and often mean endless litigation with its attending expense and the time of busy men whose efforts would otherwise be used on productive work.

These unfair buying practices, if continued, will force engineering contracting firms to become jobbing shops and will compel buyers to do their own engineering development, for which they are unfitted. In the first place, their efforts in this age of specializing and sharp competition should be centered on their products and their markets. They do not have the benefit of interchange of ideas which the engineering contractor obtains in solving similar problems for others, and consequently they are likely to make many experimental installations which, unknown to them, have already been proved to be failures.

Wouldn't it be much better economically for all if the process of evolution were left in the hands of the engineering contractors with an assured fair reward for their services when they solve unusual problems and submit outstanding designs with their original bids, rather than to appropriate such designs without recompense and use them as clubs against their originators?

ENGINEERING CONTRACTOR.

### British Iron and Steel Companies Having Hard Sledding

Financial statements for the past several years, covering six of the leading iron and steel manufacturing companies of Great Britain, are listed in a recent number of *Economist* (London). Only one company of the six has paid any dividends on common stock in the past three years. In the case of that one, the rate was reduced from 10 per cent to 5, and even then it was paid out of surplus in one year. Some of the individual results follow:

Bolckow-Vaughan & Co. have run in "red ink" for the past six years. During that period they have not paid any dividends on common stock. During the three latest years they have paid no preferred dividends and the last year preferred dividends were paid, they were cut in half.

Dorman, Long & Co. have paid no common dividends in three years. During one of those years they ran a heavy deficit, while only one year of the three provided any surplus whatever after paying interest charges.

Cargo Fleet Iron Co. has paid no dividends in six years. The last two years have shown deficits after providing for interest and other charges.

South Durham Steel & Iron Co. showed an operating deficit in one of the last three years, while another year gave a deficit after interest and other charges were paid. This company has not suspended common dividends, but cut them in half two years ago.

Baldwin's, Ltd., has paid no common dividends in six years and no preferred dividends in the last two years. Manufacturing operations have yielded a profit, but not enough to take care of interest, depreciation, etc. As a result, two of the last three years have shown a heavy drain on surplus, while the other year showed only a small addition to it.

United Steel Companies, Ltd., has paid no common dividends in six years and no preferred dividends in five years. The last year of preferred dividends showed a heavy cut in the rate. The last three operating years have shown heavy drafts on surplus, after paying interest and other charges.

# Iron and Steel Markets

## Further Gain in Steel Output

Sustained Railroad Buying and Heavy Awards of Concrete  
Bars and Structural Steel Feature Week—Mills  
Face Price Test on Automobile Steel

STEEL mill operations have shown a further gain, reflecting the recent bulge in specifications against fourth quarter contracts. Steel ingot production in Pittsburgh and nearby districts has risen to 75 per cent of capacity, or almost 15 points above the low point of last month. The Steel Corporation has lighted two blast furnaces in the Valleys and has added the second in two weeks at Chicago.

Sheet manufacturers have fully 900,000 tons of unfilled business, with independent mill operations averaging close to 90 per cent of capacity. Substantial increases have been registered also in the schedules of mills producing hot-rolled bars, cold-finished bars and strip steel. At Chicago, rail output averages 80 per cent. Production of tin plate and pipe, however, is showing relatively little improvement.

Comfortably filled order books and heavier mill engagement do not offset the fact that present commitments are at prices below those now quoted. Apart from sheets and strip, for which specifications at fourth quarter contract prices are still being accepted, the bulk of specifying has been completed, and current activity is limited chiefly to shipping instructions.

Little fresh buying has developed, but it is recognized that mill quotations face a real test as a result of efforts of the automotive industry to shift the burden of recent concessions in motor car prices.

Encouraging developments are a continuation of railroad equipment buying, further rail purchases, large placements of fabricated steel and concrete bars and increased activity of farm implement manufacturers.

In fact, good-sized railroad purchases, together with the first quarter instalment on large tin plate contracts, help to explain the gain of 518,430 tons in the Steel Corporation's unfilled orders in December. Rollings against the rails bought will be spread over a period of several months. It is significant that the gain in unfilled tonnage is the largest since that of December, 1924, which was 785,000 tons.

Railroad equipment orders for the week call for 1800 cars, of which the Texas & Pacific bought 1000 and the Southern 500, bringing the latter's total up to 5950, including those ordered in December. The Central of Georgia and the Union Pacific have each inquired for 500 cars. The Rock Island and Illinois Central are expected to come into the market for about 3000 cars each.

Rail purchases include 13,800 tons by the Cotton Belt and 10,000 tons by the Western Pacific, with about 100,000 tons yet to be placed by various Western roads, not all of which have issued definite inquiries.

The Pennsylvania Railroad has inquired for

its first quarter steel requirements amounting to 25,000 tons of plates, 8000 tons of bars, 2000 tons of shapes and smaller lots of other products.

Structural steel awards total 44,500 tons, inclusive of 9000 tons of shields for the Fulton Street tunnel, New York, while fresh inquiries aggregate 45,500 tons, of which 8000 tons is for a building in Chicago and 7800 tons for New York subway construction. The Fulton Street tunnel also calls for 54,000 tons of cast iron segments, awarded to two companies, and 2000 tons of special bolts.

Reinforcing steel awards of more than 21,000 tons include two projects of unusual size, the Coyote Point bridge across San Francisco Bay, calling for 8500 tons, and a viaduct in Cincinnati, 3500 tons.

Pig iron shipments are increasing in the Detroit district because of demands from foundries engaged in automobile work. The week's buying included 25,000 tons at Cleveland, 15,000 tons at Philadelphia and upward of 12,000 tons at St. Louis.

Small sales of malleable iron in the Valley district brought that grade down 25c. a ton, but a stiffening tendency in prices is noted in some other districts, particularly in eastern Pennsylvania, where an advance of 50c. on foundry grades has been announced, and at Cleveland, where recent large sales have lessened the efforts of Lake furnaces to sell in competitive markets. Buffalo iron is at a minimum of \$16.50 in New England and adjacent districts.

Production of steel ingots in December, at 3,150,345 tons, or 121,167 tons a day, showed a gain of 1.6 per cent over the November output of 3,101,764 tons, or 119,299 tons daily. In December, 1926, average daily production was 133,337 tons and the peak rate of 1927, in March, was 166,663 tons.

A new price schedule on 12 to 24-in. hot-rolled strip in No. 12 gage and heavier has been adopted by some mills in an effort to equalize quotations with those on two keenly competitive products, blue annealed sheets and light plates. The new prices are based according to gage on prices of 1.80c. on plates and 2.10c. on blue annealed sheets. A concurrent move was an advance of \$1 a ton in the prices of strip not covered by the schedule.

A price of \$33, mill, on sheet bars, or a reduction of \$1 a ton, has appeared at Cleveland, and as low as \$32 has been reported in the Valleys.

THE IRON AGE pig iron composite price has advanced to \$17.59 a ton, from \$17.54 of the past four weeks, its low of recent years. The finished steel composite remains for a fourth week at 2.314c. a lb.



# A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics  
At Date, One Week, One Month, and One Year Previous

Pig Iron, Per Gross Ton:	Jan. 10, 1928	Jan. 3, 1928	Dec. 13, 1927	Jan. 11, 1927
No. 2, fdy., Philadelphia...	\$19.76	\$19.76	\$19.76	\$22.26
No. 2, Valley furnace.....	17.25	17.25	17.25	18.50
No. 2, Southern, Cin'ti....	19.69	19.69	19.69	21.69
No. 2, Birmingham.....	16.00	16.00	16.00	18.00
No. 2 foundry, Chicago*....	18.50	18.50	18.50	21.00
Basic, del'd eastern Pa. . .	19.50	19.50	19.00	21.50
Basic, Valley furnace....	17.00	17.00	17.00	18.00
Valley Bessemer, del'd P'gh	19.26	19.26	19.51	21.26
Malleable, Chicago* .....	18.50	18.50	18.50	21.00
Malleable, Valley .....	17.25	17.50	17.50	18.50
Gray forge, Pittsburgh....	18.51	18.51	18.51	19.76
L. S. charcoal, Chicago....	27.04	27.04	27.04	27.04
Ferromanganese, furnace.100.00	100.00	100.00	100.00	100.00

Rails, Billets, etc., Per Gross Ton:	Jan. 10, 1928	Jan. 3, 1928	Dec. 13, 1927	Jan. 11, 1927
O.-h. rails, heavy, at mill.	\$43.00	\$43.00	\$43.00	\$43.00
Light rails at mill.....	36.00	36.00	36.00	36.00
Bess. billets, Pittsburgh...	33.00	33.00	33.00	35.00
O.-h. billets, Pittsburgh...	33.00	33.00	33.00	35.00
O.-h. sheet bars, P'gh.....	34.00	34.00	34.00	36.00
Forging billets, P'gh.....	38.00	38.00	38.00	40.00
O.-h. billets, Phila.....	38.30	38.30	38.30	40.30
Wire rods, Pittsburgh....	42.00	40.00	40.00	45.00
	Cents	Cents	Cents	Cents
Skelp, grvd. steel, P'gh, lb.	1.80	1.80	1.80	1.90

Finished Iron and Steel, Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia...	2.12	2.12	2.12	2.22
Iron bars, Chicago.....	1.90	1.90	1.90	2.00
Steel bars, Pittsburgh....	1.80	1.80	1.80	2.00
Steel bars, Chicago.....	1.90	1.90	1.90	2.10
Steel bars, New York....	2.14	2.14	2.14	2.34
Tank plates, Pittsburgh...	1.80	1.80	1.80	1.90
Tank plates, Chicago.....	1.90	1.90	1.90	2.10
Tank plates, New York...	2.12½	2.12½	2.12½	2.24
Beams, Pittsburgh .....	1.80	1.80	1.80	2.00
Beams, Chicago .....	1.90	1.90	1.90	2.10
Beams, New York.....	2.09½	2.09½	2.09½	2.34
Steel hoops, Pittsburgh...	2.20	2.20	2.20	2.30

\*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Sheets, Nails and Wire, Per Lb. to Large Buyers:	Jan. 10, 1928	Jan. 3, 1928	Dec. 13, 1927	Jan. 11, 1927
Sheets, black, No. 24, P'gh	2.80	2.80	2.75	2.90
Sheets, black, No. 24, Chi-				
cago dist. mill.....	3.00	2.90	2.90	3.20
Sheets, galv., No. 24, P'gh	3.65	3.65	3.60	3.75
Sheets, galv., No. 24, Chi-				
cago dist. mill.....	3.85	3.70	3.70	3.95
Sheets, blue, 9 & 10, P'gh	2.10	2.10	2.10	2.25
Sheets, blue, 9 & 10, Chi-				
cago dist. mill.....	2.20	2.15	2.15	2.50
Wire nails, Pittsburgh....	2.55	2.50	2.50	2.65
Wire nails, Chicago dist.				
mill .....	2.55	2.55	2.55	2.70
Plain wire, Pittsburgh....	2.40	2.40	2.40	2.50
Plain wire, Chicago dist.				
mill .....	2.45	2.45	2.45	2.55
Barbed wire, galv., P'gh..	3.25	3.20	3.20	3.35
Barbed wire, galv., Chi-				
cago dist. mill.....	3.25	3.25	3.25	3.40
Tin plate, 100 lb. box, P'gh	\$5.25	\$5.25	\$5.25	\$5.50

Old Material, Per Gross Ton:	Jan. 10, 1928	Jan. 3, 1928	Dec. 13, 1927	Jan. 11, 1927
Heavy melting steel, P'gh.	\$15.25	\$15.50	\$15.00	\$17.00
Heavy melting steel, Phila.	13.50	13.50	13.50	15.50
Heavy melting steel, Ch'go	12.50	12.50	12.00	13.25
Carwheels, Chicago .....	14.00	13.50	13.50	15.25
Carwheels, Philadelphia ..	15.50	15.50	15.50	16.50
No. 1 cast, Pittsburgh....	14.50	14.50	14.25	16.00
No. 1 cast, Philadelphia...	16.00	16.00	16.00	17.00
No. 1 cast, Ch'go (net ton)	14.50	14.00	14.00	16.50
No. 1 RR. wrot, Phila....	15.25	15.25	15.25	17.00
No. 1 RR. wrot, Ch'go (net)	11.50	11.00	10.50	12.50

Coke, Connellsville, Per Net Ton at Oven:	Jan. 10, 1928	Jan. 3, 1928	Dec. 13, 1927	Jan. 11, 1927
Furnace coke, prompt....	\$2.75	\$2.75	\$2.75	\$3.50
Foundry coke, prompt....	3.75	3.75	3.75	4.50

Metals, Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York...	14.37½	14.25	14.25	13.25
Electrolytic copper, refinery	13.87½	13.75	13.87½	13.00
Zinc, St. Louis.....	5.65	5.65	5.75	6.85
Zinc, New York.....	6.00	6.00	6.10	7.20
Lead, St. Louis.....	6.30	6.30	6.32½	7.47½
Lead, New York.....	6.50	6.50	6.50	7.65
Tin (Straits), New York...	56.12½	57.75	58.50	66.87½
Antimony (Asiatic), N. Y.	11.25	11.00	11.37½	14.00

## Pittsburgh

### Larger Orders and Operations in Steel Industry Offset by Unsatisfactory Price Situation

PITTSBURGH, Jan. 10.—Relatively full order books in most finished steel products and a substantial increase in rolling mill and steel works operations do not offset the facts that the orders and operations are based on low prices and that the efforts to establish a more profitable price level have not been particularly successful. While manufacturers are cheerful about the volume of business, they find it rather difficult to become optimistic over prices, especially as one of the results of the automobile price war has been a demand from motor car companies for help in carrying on the struggle. The steel industry faces a severe test on prices, for if it yields to the demands of the automotive industry, prices to other consuming industries cannot be well maintained.

Makers of hot rolled strips are making an effort to stiffen prices and some have actually come out with an advance. The year is too young for the low-priced business entered late last year to be worked out and the advances made in the closing weeks of the old year are yet to become fully effective. It was supposed that 4c., base, for automobile body sheets had represented a minimum based on costs, but in the week there have been reports of concessions of as much as \$2 a ton, and the formal first quarter prices on common finishes remain an objective rather than an actual basis.

Steel ingot production in Pittsburgh and nearby districts has risen nearly to 75 per cent of capacity, or almost 15 points above the low point of last month. There is almost a full operation of independent sheet mills, although it is commented upon that the current demands do not call for an operation of much more than 75 per cent. Bar mill schedules have come up in remarkable fashion, in keeping with the fact that makers of cold-finished bars are running some 15 to 20 per cent better than in December, which in turn showed an appreciable gain over the months before. Strip mill operations also have grown substantially. Tin plate and pipe mills, however, are limbering up rather slowly. The Carnegie Steel Co. has put on two furnaces in the Valley districts and now has 24 of its 51 furnaces in blast.

Pig iron is slow both in point of demand and shipments, since the melt of the foundries has not increased much. Scrap prices have weakened again, as they usually do after buyers cover and withdraw from the market. The interesting event of the week in fuel is the posting of a new wage scale by the Pittsburgh Coal Co., which reduces the pay to most of the company's workmen. Wage scales in the coal mines in this part of the country have become largely individual and the adjustment just announced by the Pittsburgh company is based on its own scale rather than upon the wages paid by other operators.

Pig Iron.—Except for some activity in malleable iron, which has developed a drop of 25c. per ton in the price, the local market has been devoid of feature. The melt of foundry iron is not heavy, and as the larger consumers are covered at least through the present quarter of the year, shipments as well as sales

suffer. Producers still are making an effort to get \$17.50, Valley furnace, for No. 2 foundry and in a few instances they have obtained that price, at points where the freight from the furnace is low. In the Pittsburgh district proper, however, \$17.25, Valley furnaces, appears to be all that can be got. A few single carloads of malleable iron have been sold in the past week at \$17.50, Valley furnace, but on the worth-while tonnages makers have not been able to do better than the price of No. 2 foundry, with which malleable grade for some time was alined. The market for malleable iron here is a limited one and consumers often have a chance to buy iron grading close to malleable analysis at less than the price of standard iron. There is no open market activity in basic iron and little in Bessemer.

**Prices per gross ton, f.o.b. Valley furnace:**

Basic .....	\$17.00
Bessemer .....	17.50
Gray forge .....	16.75
No. 2 foundry .....	17.25
No. 3 foundry .....	16.75
Malleable .....	\$17.25 to 17.50
Low phosphorus, copper free.....	27.00

Freight rate to the Pittsburgh or Cleveland district, \$1.76.

**Ferroalloys.**—A few steel makers have not contracted for supplies for this half of the year, but most of them are covered. Some have sufficient stocks to carry through the first quarter. There is a fairly good movement of ferrosilicon and spiegeleisen on contracts.

**Semi-Finished Steel.**—Open market activity is limited, but heavier operations of sheet, tin plate and strip mills are reflected in larger demands by non-integrated manufacturers. Prices of billets, slabs and sheet bars are unchanged. The regular quotation on wire rods is \$42, base Pittsburgh or Cleveland, but large users are so well covered at lower prices that only occasional small sales are being made at the higher figure. Skelp prices are no more than steady at 1.80c.

**Wire Products.**—All makers in this area are quoting nails at \$2.55, base, per keg, Pittsburgh or Cleveland, plus the card of extras adopted as of Dec. 1 last. First quarter contracts, which have been numerous, carry that price, but so far as current shipments are concerned there are few, if any, except at the old base prices and the old card of extras. Jobbers have so heavily augmented their stocks that there must be a considerable movement into consuming channels before the mills can hope to benefit much from the new schedule. There is only moderate activity in other wire products, but some betterment is noted in spring wire as automobile builders increase their production schedules.

**Rails and Track Supplies.**—Winter track-laying has not been as extensive this year as last and there is not as much ordering of spikes, tie plates and track bolts as at this time last year. Light-section rails are slow, but prices are firmly held as they are on other products under this heading.

**Tubular Goods.**—There is no sign of a revival in demand from the oil industry, and, except in the sections of the country favored by mild weather, no appreciable gain in the demand for standard-weight pipe. Mills have not recently added much pipe line business, but several of them have fair-sized backlogs in this product. A Youngstown mill last week started shipments on an order for 30,000 tons of 10-in. pipe for a line from Mexia, Tex., to Healdton, Okla., for the Sinclair Pipe Line Co. Boiler tubes and mechanical tubing are only moderately active.

**Sheets.**—Order books of makers, already heavy as result of the sales of last month, have been further swelled in the past week by some good-sized orders from automobile body builders. This business, however, is largely in releases on orders placed some time ago, when the price receded to 4c., base Pittsburgh. Ideas entertained by makers that they might be able to negotiate first quarter contracts at a higher price have vanished in the past week and body sheets, at least for this quarter, are not now considered likely to be any higher; indeed, there are reports that even that price has been shaded to the extent of \$1 to \$2 a ton. Estimates that sheet steel manufacturers were starting the new year with 1,000,000 tons of unfilled business are regarded as too high by some producers, but it is noted that many of the independent mills are operating full and independent mills as a whole are averaging close to 90 per cent. The American Sheet & Tin Plate Co. has not yet reached a 70 per cent operation of its sheet mills.

**Tin Plate.**—Mill operations are gaining momentum, but it is a gradual process and 75 per cent is probably a liberal estimate of the present gait. It was much higher a year ago, but there is not the tendency to produce in advance of specifications now.

**Cold-Finished Steel Bars and Shafting.**—There is a good movement of screw stock on contracts carrying prices \$2 a ton below those now quoted. While makers encountered some resistance in securing first quarter commitments at 2.20c., base, they appear to have been successful in maintaining that price and in securing a full complement of such business.

**Cold-Rolled Strips.**—Business is better, but prices are simply steady, as there was a little too much coverage during December for makers to make a successful stand for an advance at this juncture.

**Fluorspar.**—Domestic gravel fluorspar now is freely available at \$15 per net ton at mines, or \$20.25, delivered Pittsburgh, Youngstown and Buffalo. Producers who have been naming higher prices have gone to \$15, and it develops that on some recent business of size even that price was shaded by 50c. per ton. In their argument for an increase in the import duty on foreign spar, domestic producers placed their costs several dollars a ton higher than the prices some of them have accepted lately.

## THE IRON AGE Composite Prices

### Finished Steel Jan. 10, 1928, 2.314c. a Lb.

One week ago.....	2.314c.
One month ago.....	2.307c.
One year ago.....	2.439c.
10-year pre-war average.....	1.689c.

Based on steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 86 per cent of the United States output of finished steel.

High		Low	
1927	2.453c.	Jan. 4:	2.293c.
1926	2.453c.	Jan. 5:	2.403c.
1925	2.560c.	Jan. 6:	2.396c.
1924	2.789c.	Jan. 15:	2.460c.
1923	2.824c.	Apr. 24:	2.446c.
		Oct. 25	
		May 18	
		Aug. 18	
		Oct. 14	
		Jan. 2	

### Pig Iron Jan. 10, 1928, \$17.59 a Gross Ton

One week ago.....	\$17.54
One month ago.....	17.54
One year ago.....	19.39
10-year pre-war average.....	15.72

Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

High		Low	
1927	\$19.71.	Jan. 4:	\$17.54.
1926	21.54.	Jan. 5:	19.46.
1925	22.50.	Jan. 13:	18.96.
1924	22.88.	Feb. 26:	19.21.
1923	30.86.	Mar. 20:	20.77.
		Nov. 1	
		July 13	
		July 7	
		Nov. 3	
		Nov. 20	



# Mill Prices of Finished Iron and Steel Products

## Iron and Steel Bars

Soft Steel	Base Per Lb.
F.o.b. Pittsburgh mills.....	1.80c.
F.o.b. Chicago.....	1.90c.
Del'd Philadelphia.....	2.12c.
Del'd New York.....	2.14c.
Del'd Cleveland.....	1.99c.
F.o.b. Cleveland.....	1.80c.
F.o.b. Buffalo.....	1.90c.
F.o.b. Birmingham.....	1.95c. to 2.05c.
C.i.f. Pacific ports.....	2.35c.
F.o.b. San Francisco mills.....	2.35c. to 2.40c.

## Billet Steel Reinforcing

F.o.b. Pittsburgh mills.....	1.80c. to 1.90c.
F.o.b. Birmingham.....	2.00c. to 2.10c.

## Rail Steel

F.o.b. mills east of Chicago district.....	1.65c. to 1.70c.
F.o.b. Chicago Heights mill.....	1.80c.

## Iron

Common iron, f.o.b. Chicago.....	1.90c.
Refined iron, f.o.b. P'gh mills.....	2.75c.
Common iron, del'd Philadelphia.....	2.12c.
Common iron, del'd New York.....	2.14c.

## Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mills.....	1.80c.
F.o.b. Chicago.....	1.90c.
F.o.b. Birmingham.....	1.95c. to 2.05c.
Del'd Cleveland.....	1.99c.
Del'd Philadelphia.....	2.05c.
F.o.b. Coatesville.....	1.95c.
F.o.b. Sparrows Point.....	1.95c.
F.o.b. Buffalo.....	1.90c.
Del'd New York.....	2.12½c.
C.i.f. Pacific ports.....	2.30c.

## Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mills.....	1.80c.
F.o.b. Chicago.....	1.90c.
F.o.b. Birmingham.....	1.95c. to 2.05c.
F.o.b. Buffalo.....	1.90c.
Del'd Cleveland.....	1.99c.
Del'd Philadelphia.....	2.08c.
Del'd New York.....	2.09½c.
C.i.f. Pacific ports.....	2.35c.

## Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
All gages, 2 in. and narrower, P'gh.....	2.10c. to 2.20c.
All gages, wider than 2 in., to 6 in., P'gh.....	2.00c. to 2.10c.
*All gages, 6 in. and wider, P'gh.....	1.80c. to 1.90c.
All gages, narrower than 6 in., Chicago.....	2.40c.
All gages, 6 in. and wider, Chicago.....	2.20c. to 2.40c.

\*Mills follow plate or sheet prices according to gage on wider than 14 in.

## Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mills.....	2.20c.
Bars, f.o.b. Chicago.....	2.20c.
Bars, Cleveland.....	2.25c.
Shafting, ground, f.o.b. mill.....	*2.35c. to 2.80c.
Strips, under 12 in., 1 up to 3 tons, P'gh.....	3.00c. to 3.15c.
Strips, under 12 in., 1 up to 3 tons, Cleve-land.....	3.00c. to 3.15c.
Strips, under 12 in., 1 up to 3 tons, del'd Chicago.....	3.20c. to 3.45c.
Strips, under 12 in., 1 up to 3 tons, Wor-cesters.....	3.25c. to 3.40c.

\*According to size.

## Wire Products

(To jobbers in car lots, f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails.....	\$2.55
Galvanized nails.....	4.55
Galvanized staples.....	3.25
Polished staples.....	3.00
Cement coated nails.....	2.55

	Base Per 100 Lb.
Bright plain wire, No. 9 gage.....	\$2.40
Annealed fence wire.....	2.55
Spring wire.....	3.40
Galv'd wire, No. 9.....	3.00
Barbed wire, galv'd.....	\$3.20 to 3.25
Barbed wire, painted.....	2.95 to 3.00

Chicago district mill and delivered Chicago prices are \$1 per ton above the foregoing. Birmingham mill prices \$3 a ton higher; Worcester, Mass., (wire) mill \$3 a ton higher on production of that plant; Duluth, Minn., mill \$2 a ton higher; Anderson, Ind., \$1 higher.

## Woven Wire Fence

	Base to Retailers Per Net Ton
F.o.b. Pittsburgh.....	\$65.00
F.o.b. Cleveland.....	65.00
F.o.b. Anderson, Ind.....	66.00
F.o.b. Chicago district mills.....	67.00
F.o.b. Duluth.....	68.00
F.o.b. Birmingham.....	68.00

## Sheets

Blue Annealed	Base Per Lb.
Nos. 9 and 10, f.o.b. Pittsburgh.....	2.10c. to 2.20c.
Nos. 9 and 10, f.o.b. Chicago dist. mill.....	2.20c. to 2.30c.
Nos. 9 and 10, del'd Cleveland.....	2.24c. to 2.29c.
Nos. 9 and 10, del'd Philadelphia.....	2.42c. to 2.47c.
Nos. 9 and 10, f.o.b. Birmingham.....	2.25c. to 2.30c.

## Box Annealed, One Pass Cold Rolled

No. 24, f.o.b. Pittsburgh.....	2.80c. to 2.90c.
No. 24, f.o.b. Chicago dist. mill.....	3.00c.
No. 24, del'd Cleveland.....	2.99c. to 3.09c.
No. 24, del'd Philadelphia.....	3.12c. to 3.22c.
No. 24, f.o.b. Birmingham.....	3.05c.

## Metal Furniture Sheets

No. 24, f.o.b. Pittsburgh, A grade.....	3.95c. to 4.05c.
No. 24, f.o.b. Pittsburgh, B grade.....	3.75c. to 3.85c.

## Galvanized

No. 24, f.o.b. Pittsburgh.....	3.65c. to 3.75c.
No. 24, f.o.b. Chicago dist. mill.....	3.85c.
No. 24, del'd Cleveland.....	3.84c. to 3.94c.
No. 24, del'd Philadelphia.....	3.97c. to 4.07c.
No. 24, f.o.b. Birmingham.....	3.90c.

## Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh.....	2.90c. to 3.00c.
No. 28, f.o.b. Chicago dist. mill.....	3.00c. to 3.10c.

## Automobile Body Sheets

No. 20, f.o.b. Pittsburgh.....	4.00c.
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## Long Ternes

No. 24, 8-lb. coating, f.o.b. mill primes.....	4.10c.
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## Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills.....	\$5.25
Standard cokes, f.o.b. Gary and Elwood, Ind.....	5.35

## Terne Plate

(F.o.b. Morgantown or Pittsburgh)

(Per package, 20 x 28 in.)

8-lb. coating I.C. \$11.40	25-lb. coating I.C. \$17.30
15-lb. coating I.C. 14.45	30-lb. coating I.C. 18.75
20-lb. coating I.C. 15.80	40-lb. coating I.C. 20.85

## Alloy Steel Bars

(F.o.b. Pittsburgh, Chicago or Ohio Mill)

S. A. E. Series Numbers	Base Per 100 Lb.
2100* (½% Nickel, 0.10% to 0.20% Carbon).....	\$2.90 to \$3.00
2300 (¾% Nickel).....	4.00 to 4.10
2500 (5% Nickel).....	5.00 to 5.25
3100 (Nickel Chromium).....	3.00 to 3.10
3200 (Nickel Chromium).....	4.75 to 5.00
3300 (Nickel Chromium).....	6.75 to 7.00
3400 (Nickel Chromium).....	6.00 to 6.25
5100 (Chromium Steel).....	3.00 to 3.10
5200* (Chromium Steel).....	7.00 to 7.50
6100 (Chrom. Vanadium bars).....	4.00 to 4.15
6100 (Chrom. Vanad. spring steel).....	3.50 to 3.75
9250 (Silicon Manganese spring steel).....	3.00 to 3.15

Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.).....	4.10 to 4.20
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.).....	4.05 to 4.20
Chromium Molybdenum bars (0.30—1.10 Chrom., 0.25—0.40 Molyb.).....	4.00 to 4.25
Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.).....	3.05 to 3.10
Chromium Molybdenum spring steel (1—1.25 Chrom., 0.30—0.50 Molybdenum).....	4.50 to 4.75

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2½ in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

\*Not S. A. E. specification, but numbered by manufacturers to conform to S. A. E. system.

## Rails

	Per Gross Ton
Standard, f.o.b. mill.....	\$43.00
Light (from billets), f.o.b. mill.....	36.00
Light (from rail steel), f.o.b. mill.....	34.00
Light (from billets), f.o.b. Ch'go mill.....	36.00

## Track Equipment

	Base Per 100 Lb.
Spikes, ½ in. and larger.....	\$2.80
Spikes, ½ in. and smaller.....	\$2.75 to 2.80
Spikes, boat and barge.....	3.10
Tie plates, steel.....	2.25
Angle, bars.....	2.75
Track bolts, to steam railroads.....	3.80 to 4.00
Track bolts, to jobbers, all sizes, per 100 count, 70 per cent off list	

## Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Steel	Butt Weld	Iron	Galv.
Inches	Inches	Inches	Inches
Black	Galv.	Black	Galv.
19½.....	45	¾ to 1.....	+11
¾ to 1.....	51	1 to 1½.....	22
1.....	56	1½ to 2.....	28
1½.....	60	2 to 2½.....	30
2 to 3.....	62	2½ to 3.....	30

## Lap Weld

2.....	55	43½	2.....	23	7
2½ to 6.....	59	47½	2½.....	26	11
7 and 8.....	56	48½	3 to 6.....	28	13
9 and 10.....	54	41½	7 to 12.....	26	11
11 and 12.....	53	40½			

## Butt Weld, extra strong, plain ends

¾.....	41	24½	¾ to 1.....	+19	+54
1 to 1½.....	47	30½	1 to 1½.....	21	17
1½.....	53	42½	1½ to 2.....	28	12
2.....	58	47½	2 to 2½.....	30	14
2½ to 3.....	60	49½			
3 to 4.....	61	50½			

## Lap Weld, extra strong, plain ends

2.....	53	42½	2.....	23	9
2½ to 4.....	57	46½	2½ to 4.....	29	15
4½ to 6.....	56	45½	4½ to 6.....	28	14
7 to 8.....	52	39½	7 to 8.....	21	15
9 and 10.....	45	32½	9 to 12.....	16	2
11 and 12.....	44	31½			

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5 and 5%, and on galvanized by 1½ points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2½%.

Note.—Chicago district mills have a base two-points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

## Boiler Tubes

Base Discounts, f.o.b. Pittsburgh

Lap Welded Steel	Charcoal Iron
2 to 2½ in.....	27
2½ to 3 in.....	37
3 in.....	40
3½ to 4 in.....	42½
4 to 4½ in.....	46
4½ to 5 in.....	48
5 to 5½ in.....	50
5½ to 6 in.....	52
6 to 6½ in.....	54
6½ to 7 in.....	56
7 to 7½ in.....	58
7½ to 8 in.....	60
8 to 8½ in.....	62
8½ to 9 in.....	64
9 to 9½ in.....	66
9½ to 10 in.....	68
10 to 10½ in.....	70
10½ to 11 in.....	72
11 to 11½ in.....	74
11½ to 12 in.....	76
12 to 12½ in.....	78
12½ to 13 in.....	80
13 to 13½ in.....	82
13½ to 14 in.....	84
14 to 14½ in.....	86
14½ to 15 in.....	88
15 to 15½ in.....	90
15½ to 16 in.....	92
16 to 16½ in.....	94
16½ to 17 in.....	96
17 to 17½ in.....	98
17½ to 18 in.....	100

Beyond the above discounts, 7 fives extra are given on lap welded steel tubes and 2 tens to 2 tens and 1 five on charcoal iron tubes.

## Standard Commercial Seamless Boiler Tubes

Cold Drawn	Hot Rolled
1 in.....	60
1½ to 1½ in.....	52
1½ in.....	36
2 to 2½ in.....	31
2½ to 2½ in.....	39
2 and 2½ in.....	37
2½ and 2½ in.....	45
3 in.....	51
3½ and 3½ in.....	53
4 in.....	56
4½, 5 and 6 in.....	51

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

## Seamless Mechanical Tubing

	Per Cent Off List
Carbon, 0.10% to 0.30%, base.....	55
Carbon, 0.30% to 0.40%, base.....	50

Plus differentials for lengths over 18 ft. and for commercial exact lengths. Warehouse discounts on small lots are less than the above.

**Hot-Rolled Flats.**—Hot strip mills are attempting to stabilize prices on wide strip and equalize them with blue annealed sheets and light plates by the adoption during the week of new prices on strip 12-gage and heavier, 12 to 24 in. wide. These are based according to gage on a plate price of 1.80c. and a blue annealed price of 2.10c. At the same time some mills announced an advance of \$1 a ton on strip 6 in. and wider and the narrower widths. Releases on contracts are heavier than they have been and this month is showing up better than December.

**Old Material.**—The market is hardly as strong as it was a week ago. One buyer who covered then and another who previously covered are not disposed to buy in competition with the dealers who sold them. Heavy melting steel is quotable at no more than \$15.50, and dealers who were paying that price a week ago to cover short sales are now offering \$15.25. Blast furnace grades are firm. It is difficult to interest foundries in purchases at more than the recent prices.

*Prices per gross ton delivered consumers' yards in Pittsburgh and points taking the Pittsburgh district freight rate:*

Basic Open-Hearth Furnace Grades:	
Heavy melting steel.....	\$15.25 to \$15.50
Scrap rails .....	14.75 to 15.00
Compressed sheet steel.....	14.25 to 14.50
Bundled sheets, sides and ends...	13.25 to 13.50
Cast iron carwheels .....	14.00 to 14.50
Sheet bar crops, ordinary.....	15.00 to 15.50
Heavy breakable cast .....	13.00 to 13.50
No. 2 railroad wrought.....	15.00 to 15.50
Heavy steel axle turnings.....	13.00 to 13.50
Machine shop turnings.....	11.00

Acid Open-Hearth Furnace Grades:	
Railroad knuckles and couplers..	17.00 to 17.25
Railroad coil and leaf springs...	17.00 to 17.25
Rolled steel wheels .....	16.50 to 17.00
Low phosphorus billet and bloom ends .....	18.50 to 19.00
Low phosphorus, mill plate.....	17.50 to 18.00
Low phosphorus, light grade.....	16.50 to 17.00
Low phosphorus sheet bar crops...	17.50 to 18.00
Heavy steel axle turnings.....	13.00 to 13.50

Electric Furnace Grades:	
Low phosphorus punchings.....	16.50 to 17.00
Heavy steel axle turnings.....	13.00 to 13.50

Blast Furnace Grades:	
Short shoveling steel turnings...	11.50 to 12.00
Short mixed borings and turnings	11.50 to 12.00
Cast iron borings.....	11.50 to 12.00
No. 2 bushelling .....	10.00 to 10.50

Rolling Mill Grades:	
Steel car axles .....	18.00 to 19.00
No. 1 railroad wrought .....	11.00 to 11.50
Sheet bar crops .....	17.00 to 17.50

Cupola Grades:	
No. 1 cast .....	14.50 to 15.00
Rails 3 ft. and under.....	15.25 to 15.50

Malleable Grades:	
Railroad .....	15.25 to 15.50
Industrial .....	14.75 to 15.00
Agricultural .....	14.25 to 14.50

**Bars, Plates and Shapes.**—Bars continue to make the best showing of these products in orders and in mill schedules, but both plates and shapes have enjoyed

#### Warehouse Prices, f.o.b. Pittsburgh

	Base per Lb.
Plates .....	3.00c.
Structural shapes .....	3.00c.
Soft steel bars and small shapes...	2.90c.
Reinforcing steel bars .....	2.75c.
Cold-finished and screw stock—	
Rounds and hexagons .....	3.60c.
Squares and flats .....	4.10c.
Bands .....	3.60c.
Hoops .....	4.00c. to 4.50c.
Black sheets (No. 24 gage), 25 or more bundles .....	3.65c.
Galvanized sheets (No. 24 gage), 25 or more bundles .....	4.50c.
Blue annealed sheets (No. 10 gage), 25 or more sheets .....	3.10c.
Galvanized corrugated sheets (No. 28 gage), per square .....	\$4.39
Spikes, large .....	3.30c. to 3.40c.
Small .....	3.80c. to 5.25c.
Boat .....	3.80c.
Track bolts, all sizes, per 100 count, 62½ per cent off list	
Machine bolts, per 100 count, 62½ per cent off list	
Carriage bolts, per 100 count, 62½ per cent off list	
Nuts, all styles, per 100 count, 62½ per cent off list	
Large rivets, base per 100 lb. ....	\$3.50
Wire, black soft annealed, base per 100 lb. ....	\$3.00 to 3.10
Wire, galvanized soft, base per 100 lb. ....	3.00 to 3.10
Common wire nails, per keg.....	3.00
Cement coated nails, per keg.....	3.05

a substantial betterment over the specifications for December. The current movement of these products is chiefly on shipping instructions against contracts or coverages for the fourth quarter. With the exception of plates, there are no suggestions that any first quarter business has been entered at less than 1.80c. and the concessions in plates have been exceptional. The Carnegie Steel Co. has issued a new card of extras on bars, adopting the quantity extras recently announced.

**Bolts, Nuts and Rivets.**—Bolt and nut business is improving but the demand for rivets still is rather slow. Prices are firm.

**Warehouse Business.**—Prices of sheets out of local warehouses were advanced 10c. per 100 lb. late last week. Warehouse quotations on nails also have been stiffened in keeping with the new base price and card of extras issued by the mills. Jobbers report some improvement in business with the turn of the year.

**Coke and Coal.**—Except that slack coal is a little less plentiful and commands more money, the general situation is about as it has been for some time, with ample supplies of both coal and coke and not much strength in prices.

### Demand for Adirondack Ore Not Increasing, Says Decision

WASHINGTON, Jan. 10.—Statistics of the production of Adirondack iron ore do not afford much support to the claim of the Delaware & Hudson Co. that there is an increased demand for this ore, said the Interstate Commerce Commission in a decision made public recently denying the application of that company to acquire control of the Buffalo, Rochester & Pittsburgh Railway. It was contended by the applicant that shipments of Adirondack ore to the Pittsburgh district would largely increase "because the deposits of Lake Superior hematite ore, chiefly used in that district, are disappearing rapidly and their iron content is gradually decreasing, the standard having been 65 per cent in 1888 and being now 51.5, with the prospect of soon being reduced to 50 per cent." It was declared that it would therefore be necessary in the future to mine and utilize ores lower in iron content that can be concentrated and marketed economically at present, "and this will bring into the market increasing quantities of the Adirondack ores." The decision said that the record shows that there is practically an unlimited supply of low phosphorus, magnetic iron ore in the Adirondacks, "roughly estimated at 2,100,000,000 tons, from which almost any grade of iron can be made, while there are no Lake Superior ores from which low phosphorus iron can be made."

In stating that statistics do not support the claim of increased demand for Adirondack ore, the commission presented a table showing shipments, in tons, of iron originating on the Delaware & Hudson line in the years 1915 to 1925, inclusive, as follows:

1915.....	630,747	1921.....	109,241
1916.....	1,264,175	1922.....	180,385
1917.....	1,224,929	1923.....	562,877
1918.....	1,185,415	1924.....	202,148
1919.....	1,003,068	1925.....	342,026
1920.....	774,591		

### Bethlehem to Offer Cash Prizes in Accident Prevention Work

The Bethlehem Steel Corporation has announced a series of gold awards for progress during 1928 in accident prevention. These awards will be made quarterly under a new plan to be inaugurated throughout the entire Bethlehem organization.

The organization will be divided into 11 groups, and the plan provides that the group making the greatest percentage of reduction in time lost due to accidents during each quarter of 1928 will be awarded a prize of \$1,000 in gold. To the groups making the second and third best showings will be awarded prizes amounting to \$500 and \$250 respectively. A permanent trophy will be awarded to the group making the greatest reduction in the time lost due to accidents for the entire year 1928.



# Semi-Finished Steel, Raw Materials, Bolts and Rivets

## Mill Prices of Semi-Finished Steel

F.o.b. Pittsburgh or Youngstown

Billets and Blooms	
	Per Gross Ton
Rerolling, 4-in. and over.....	\$33.00
Rerolling, under 4-in. to and including 1½ in.....	\$33.50 to \$4.00
Forging, ordinary.....	\$35.00 to \$9.00
Forging, guaranteed.....	\$43.00 to \$4.00

Sheet Bars	
	Per Gross Ton
Open-hearth or Bessemer.....	\$34.00

Slabs	
	Per Gross Ton
8 in. x 2 in. and larger.....	\$33.00
Smaller than 8 in. x 2 in.....	\$34.00

Skelp	
	Per Lb.
Grooved.....	1.80c.
Sheared.....	1.80c.
Universal.....	1.80c.

Wire Rods	
	Per Gross Ton
*Common soft, base.....	\$42.00
Screw stock.....	\$5.00 per ton over base
Carbon 0.20% to 0.40%..	3.00 per ton over base
Carbon 0.41% to 0.55%..	5.00 per ton over base
Carbon 0.56% to 0.75%..	7.50 per ton over base
Carbon over 0.75%.....	10.00 per ton over base
Acid.....	15.00 per ton over base

\*Chicago mill base is \$43. Cleveland mill base, \$42.

## Prices of Raw Material

Ores	
Lake Superior Ores, Delivered Lower Lake Ports	
	Per Gross Ton
Old range Bessemer, 51.50% iron.....	\$4.55
Old range non-Bessemer, 51.50% iron.....	4.40
Mesabi Bessemer, 51.50% iron.....	4.40
Mesabi non-Bessemer, 51.50% iron.....	4.25
High phosphorus, 51.50% iron.....	4.15

Foreign Ore, c.i.f. Philadelphia or Baltimore	
	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algeria.....	10.00c.
Iron ore, Swedish, average 66% iron, 9.25c. to 9.50c. from the Caucasus.....	39c.
Manganese ore, washed, 52% manganese, from the Caucasus.....	35c. to 39c.
Manganese ore, Brazilian, African or Indian, basis 50%.....	\$10.25 to \$10.75
Tungsten ore, high grade, per unit, in 60% concentrates.....	Per Gross Ton
Chrome ore, 45 to 50% Cr <sub>2</sub> O <sub>3</sub> , crude, c.i.f. Atlantic seaboard.....	\$22.00 to \$24.00
Molybdenum ore, 85% concentrates of MoS <sub>2</sub> , delivered.....	50c. to 55c.

Coke	
	Per Net Ton
Furnace, f.o.b. Connellsville prompt.....	\$2.75
Foundry, f.o.b. Connellsville prompt.....	\$3.75 to 4.50
Foundry, by-product, Ch'go ovens.....	9.00
Foundry, by-product, New England, del'd.....	11.50
Foundry, by-product, Newark or Jersey City, delivered.....	9.45 to 9.85
Foundry, Birmingham.....	5.00
Foundry, by-product, St. Louis.....	9.75

Coal	
	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines.....	\$1.40 to \$1.90
Mine run coking coal, f.o.b. W. Pa. mines.....	1.50 to 1.75
Mine run gas coal, f.o.b. Pa. mines.....	1.75 to 1.90
Steam slack, f.o.b. W. Pa. mines.....	1.00 to 1.10
Gas slack, f.o.b. W. Pa. mines.....	1.15 to 1.25

Ferromanganese	
	Per Gross Ton
Domestic, 80%, furnace or seab'd.....	\$100.00
Foreign, 80%, Atlantic or Gulf port, duty paid.....	100.00

Spiegeleisen	
	Per Gross Ton Furnace
Domestic, 19 to 21%.....	\$31.00 to \$32.00
Domestic, 16 to 19%.....	29.00

Electric Ferrosilicon	
	Per Gross Ton Delivered
50%.....	\$83.50
75%.....	135.00
Per Gross Ton Furnace	
10%.....	\$35.00
11%.....	\$37.00
12%.....	\$39.00
14 to 16%.....	45.00

Bessemer Ferrosilicon	
F.o.b. Jackson County, Ohio, Furnace	
	Per Gross Ton
10%.....	\$30.00
11%.....	32.00
12%.....	\$34.00

Silvery Iron	
F.o.b. Jackson County, Ohio, Furnace	
	Per Gross Ton
6%.....	\$23.00
7%.....	24.00
8%.....	25.00
9%.....	26.00
10%.....	\$28.00
11%.....	30.00
12%.....	32.00

Other Ferroalloys	
Ferrotungsten, per lb. contained metal, del'd.....	92c. to 95c.
Ferrocromium, 4 to 6% carbon and up, 65 to 70% Cr., per lb. contained Cr. delivered, in carloads.....	11.00c.
Ferrovandium, per lb. contained vanadium, f.o.b. furnace.....	\$3.15 to \$3.65
Ferrocobaltititanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads.....	\$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton.....	\$91.00
Ferrophosphorus, electric, 24%, f.o.b. Anniston, Ala., per net ton.....	\$122.50

Fluxes and Refractories	
Fluorspar	
	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines.....	\$15.00
No. 2 lump, Illinois and Kentucky mines.....	\$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid.....	\$16.00
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines.....	\$32.50

Fire Clay	
Per 1000 f.o.b. Works	
	First Quality Second Quality
Pennsylvania.....	\$43.00 to \$46.00 \$35.00 to \$38.00
Maryland.....	43.00 to 46.00 35.00 to 38.00
New Jersey.....	50.00 to 65.00
Ohio.....	43.00 to 46.00 35.00 to 38.00
Kentucky.....	43.00 to 46.00 35.00 to 38.00
Missouri.....	43.00 to 46.00 35.00 to 38.00
Illinois.....	43.00 to 46.00 35.00 to 38.00
Ground fire clay, per ton.....	7.00

Silica Brick	
Per 1000 f.o.b. Works	
Pennsylvania.....	\$43.00
Chicago.....	52.00
Birmingham.....	50.00
Silica clay, per ton.....	\$8.50 to 10.00

Magnesite Brick	
Per Net Ton	
Standard sizes, f.o.b. Baltimore and Chester, Pa. ....	\$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa. ....	40.00

Chrome Brick	
	Per Net Ton
Standard size.....	\$45.00

## Mill Prices of Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts	
Per 100 Pieces	
(F.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)	
	Per Cent Off List
†Machine bolts.....	70
†Carriage bolts.....	70
Lag bolts.....	70
Plow bolts, Nos. 1, 2, 3 and 7 heads.....	70
Hot-pressed nuts, blank or tapped, square.....	70
Hot-pressed nuts, blank or tapped, hexagon.....	70
C.p.c. and t. square or hex. nuts, blank or tapped.....	70
Washers*.....	6.75c. to 6.50c. per lb. off list

\*F.o.b. Chicago, New York and Pittsburgh.  
†Bolts with rolled threads up to and including ¾ in. x 6 in. take 10 per cent lower list prices.

Bolts and Nuts	
Per Cent Off List	
Semi-finished hexagon nuts.....	70
Semi-finished hexagon castellated nuts, S.A.E. ....	70
Stove bolts in packages.....	80, 10 and 5
Stove bolts in bulk.....	80, 10, 5 and 2½
Tire bolts.....	60, 5 and 5
Discount of 70 per cent off on bolts and nuts applied on carload business. For less than carload orders discounts of 55 to 60 per cent apply.	

Large Rivets	
(¾-In. and Larger)	
	Base per 100 Lb.
F.o.b. Pittsburgh or Cleveland.....	\$2.75
F.o.b. Chicago.....	2.85

Small Rivets	
(½-In. and Smaller)	
	Per Cent Off List
F.o.b. Pittsburgh.....	70, 10 and 5
F.o.b. Cleveland.....	70, 10 and 5 to 70 and 10
F.o.b. Chicago.....	70, 10, 10 and 5 to 70 and 10

Cap and Set Screws	
(Freight allowed up to but not exceeding 50c. per 100 lb. on lots of 200 lb. or more)	
	Per Cent Off List
Milled cap screws.....	80, 10 and 10
Milled standard set screws, case hardened.....	80 and 10
Milled headless set screws, cut thread.....	80
Upset hex. head cap screws, U.S.S. thread.....	85 and 5
Upset hex. cap screws, S.A.E. thread.....	85 and 5
Upset set screws.....	80, 10 and 10
Milled studs.....	70 and 5

# Chicago

## Steel Business and Prices Gain Strength —Operations Increase

CHICAGO, Jan. 10.—Chicago district steel mills, having eaten heavily into stocks of iron on the ground, are now watching the production of pig iron more closely. The Illinois Steel Co. has blown in its No. 9 stack at South Chicago, the second to be lighted in two weeks. The Inland Steel Co. is bringing its fourth stack in blast this week. These raise the active steel mill blast furnaces to 24 out of 36. In merchant pig iron the situation is different, and though shipments are on the upturn, furnace stocks are large. The operators of the Mayville furnace announce that the one unit in blast there will be blown out about the middle of the month.

Orders for railroad equipment include 1000 freight and 15 passenger cars, and fresh inquiry is for 500 freight and 20 passenger cars and 200 underframes. Business not yet in the form of definite inquiry includes 3000 freight cars for the Rock Island and at least an equal number of freight cars and additional suburban coaches for the Illinois Central.

Judged by the volume of business received and the price structure, the local steel market shows added signs of strength. In plates, shapes and bars 1.90c., Chicago, is well established and users, notably fabricators, are taking steps to pass on the advance in steel prices. Specifications are heavier than shipments, the latter representing 75 per cent of ingot capacity. Individual orders are larger as consumers feel the pinch of extended deliveries, which in the case of mild steel bars now are from two to four weeks.

**Pig Iron.**—Liquidation of charcoal furnace stocks, largely to middlemen, continues, with delivered prices that exceed by only a small margin the current quotations on Northern foundry iron. It is reported that close to \$20, delivered, is being done at points where the freight rate is about \$2.50, making the furnace price not far from \$17.50 a ton. Local furnaces are taking no recognition of this competition and are holding to \$18.50 on their products. Sales of Northern iron are at a steady rate and inquiry for the second quarter is more active. Shipments are gaining slowly and it is noticeable that malleable foundries, long out of the market, are in need of pig iron.

### Prices per gross ton at Chicago:

Northern No. 2 foundry, sil. 1.75 to 2.25 .....	\$18.50
N'th'n No. 1 rdy., sil. 2.25 to 2.75 .....	19.00
Malleable, not over 2.25 sil. ....	18.50
High phosphorus .....	18.50
Lake Superior charcoal, averaging sil. 1.50 .....	27.04
Southern No. 2 rdy. (all rail) ...	22.01
Southern No. 2 (barge and rail) ..	20.18
Low phos., sil. 1 to 2 per cent, copper free .....	\$28.50 to 29.00
Silvery, sil. 8 per cent. ....	29.79
Bessemer ferrosilicon, 14 to 15 per cent .....	46.79

Prices are delivered consumers' yards except on Northern foundry, high phosphorus and malleable which are f.o.b. local furnace, not including an average switching charge of 61c. per gross ton.

**Coke.**—Contract and spot prices for by-product foundry coke are steady at \$9, local ovens, and \$9.50, delivered in the Chicago switching district.

**Ferroalloys.**—Spiegeleisen is showing added strength at \$31, Hazard, Pa., in tonnage lots, and at \$32 in carloads for the 19 to 21 per cent grade. Ferromanganese is quoted at \$100, seaboard.

Prices delivered Chicago: 80 per cent ferromanganese, \$107.56; 50 per cent ferrosilicon, \$83.50 to \$87.50; spiegeleisen, 19 to 21 per cent, \$38.76 to \$39.76.

**Cast Iron Pipe.**—It is reported that the low bid at Milwaukee on 5000 tons of 6 to 16-in. class C pipe was \$25.85, Birmingham, or \$34.35, delivered, which is about \$2 a ton below the minimum obtained for the last several weeks. At Kenosha, Wis., the National Cast Iron Pipe Co. took 440 tons of 6- to 12-in. pipe in 16-ft. lengths at a base price of \$28, Birmingham, or \$36.50,

delivered. Among fresh inquiries is 2000 tons of 4 to 8-in. class B pipe for Yellow Springs, Ohio, and 600 tons of 4 to 30-in. class B pipe for Portsmouth, Ohio. Indications are that a fair winter buying movement is getting under way. Deliveries are prompt in all sizes. One foundry in Birmingham has lost almost a week's production because of cold weather.

Prices per net ton, delivered Chicago: Water pipe, 6-in. and over, \$36.20 to \$38.20; 4-in., \$40.20 to \$42.20; Class A and gas pipe, \$4 extra.

**Plates.**—Oil storage tanks for western Texas take 3000 tons of plates just purchased. Tank builders are well engaged and are issuing heavy specifications. Producers of steel are feeling the effect of recent car orders. Specifications are not heavy at the moment but car builders are actively preparing schedules against which shipments are to be made in the near future. The Texas & Pacific Railroad has ordered 500 gondola cars from the Pressed Steel Car Co., also 200 box, 300 flat and 15 passenger cars from the American Car & Foundry Co. Among fresh inquiries are 500 gondola cars for the Central of Georgia and 200 underframes for the Santa Fe. Plate mills are well engaged but still lag a little behind the rate of output of the other heavy tonnage products. Specifications from the general manufacturing trade are expanding slowly and plate requirements by structural fabricators show a decided improvement over the closing weeks of 1927. Prices are steady at 1.90c., Chicago.

Mill prices on plates per lb.: 1.90c., base, Chicago.

**Structural Material.**—A stir is being created in the local structural market by the possibility that fabricators will withdraw old quotations and put prices on a higher level. In some measure this is a reflection of the determination of mills to hold the recent advance in steel prices, but it also indicates that shops cannot much longer stand operation at low profit or none at all. This move has brought prospective builders and architects to realize that prices for structural steel are low and many projects have been hastened into the market. Greater activity is shown in the preparation of plans for the Marshall Field & Co. warehouse and estimators expect plans on the Steuben Club building in the next week or so. New projects in Chicago include 6000 tons for the Forman Building, 3000 tons for an addition to the Drake Hotel, and 1800 tons for an extension of the Illinois Bell Telephone Co.'s holdings. Bridge contracts account for 3800 tons. Highway improvement programs include a large number of bridges and fabricators expect a substantial volume of business from that source during the coming spring and summer months. Prices are steady at 1.90c., Chicago.

Mill prices on plain material per lb.: 1.90c., base, Chicago.

**Reinforcing Bars.**—Prices for billet steel reinforcing bars are stronger at 2.30c. to 2.75c. out of Chicago warehouses. Sales are in small volume, but they measure well up to what can be expected at this time of the year. Bending shops have turned the year with shipments that represent about 55 per cent of fabricating capacity. Outstanding among new projects is 500 tons for a warehouse for Meyer-Marvis, Chicago. Competition in rail steel reinforcing bars is keen and prices range 1.80c. to 1.85c., Chicago Heights mills. New business and fresh inquiry are shown on page ....

**Bars.**—Mill deliveries of mild steel bars are extending and now range from two to three weeks. Sales continue active and like specifications are in excess of current shipments. Practically all classes of users are taking larger quantities though the most noteworthy improvement is from the automotive trade and accessory manufacturers. Farm implement makers are taking shipments in excess of the schedules previously arranged for the early weeks in January. The bar iron market is without feature and asking prices are 1.90c., Chicago. Shipments of alloy steel bars are growing as the automotive trade swings into heavier production. Output in the Chicago district is at 70 per cent. Bookings at rail steel bar mills are heavier than a year ago. Delivery is prompt and prices are steady at 1.80c., Chicago Heights mills.

Mill prices per lb.: Soft steel bars, 1.90c., base, Chicago; common bar iron, 1.90c., base, Chicago; rail steel bars, 1.80c., base, Chicago Heights mill.



**Sheets.**—Mills have heavy order books but specifications are in small volume and rolling schedules are difficult to arrange to maintain output at 70 per cent of hot mill capacity. Producers feel that a more active demand is near at hand and that the cause for the delay in specifications lies in the nearness of the inventory period and adjustments following the holiday period. There is little of note in the price situation. Order books are well loaded at lower quotations than are now being asked. Delivered prices in Chicago are 3.90c. for galvanized, 2.25c. to 2.35c. for blue annealed, depending on the width, and 3.05c. for black sheets. Stocks in the hands of manufacturers and jobbers are reported as small. Deliveries range from two to three weeks, depending on the grade.

*Base prices per lb., delivered from mill in Chicago:* No. 24 black, 3.05c.; No. 24 galvanized, 3.90c.; No. 10 blue annealed, 2.25c. to 2.35c. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

**Cold Rolled Bars.**—Producers have heavy bookings and specifications are growing in volume, affording an increase in output this week. Prices are steady at 2.20c., Chicago.

**Wire Rods.**—Sales are moderately active, with the bulk of orders taken at \$43, Chicago mill base.

**Wire Products.**—Orders are in such volume that the 70 per cent rate of output reached a week ago is being maintained. There is a quickening in demand from practically all parts of the country, the Northwest excepted. Mill stocks are not being increased. Jobbers are alert to the possibility of an active spring demand and are rounding out and in some cases expanding stocks. Railroad purchases are heavier by a small margin and shipments to the manufacturing trade show improvement. Orders for nails are considered good for this time of year.

**Rails and Track Supplies.**—Rail purchases in the week totaled 19,000 tons. The outstanding order, from the Cotton Belt Railroad, was distributed as follows: Bethlehem Steel Co., 5000 tons; Illinois Steel Co., 4500 tons, and Inland Steel Co., 4300 tons. Fresh inquiry and business that is in the making in territory tributary to Chicago district mills total not less than 100,000 tons. Rail mill output is now close to 80 per cent of capacity. Four Western railroads have closed for 15,000 tons of track accessories, and pending inquiry gives promise of an active market for several weeks to come. Production of track supplies is lagging at 60 per cent of capacity. For the first time in months there is a moderate demand for iron tie plates and several lots have been purchased.

*Prices f.o.b. mill, per gross ton:* Standard-section open-hearth and Bessemer rails, \$43; light rails, rolled from billets, \$36. *Per Lb.:* Standard railroad spikes, 2.80c.; track bolts with square nuts, 3.80c.; steel tie plates, 2.25c.; angle bars, 2.75c.

**Old Material.**—This market is taking on more life. Individual purchases are not large but they are numerous and are being made principally by foundries and users of specialties. A notable development in the week is the greater activity shown by malleable foundries which are now openly seeking supplies of scrap.

#### Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes.....	3.10c.
Soft steel bars.....	3.00c.
Reinforcing bars, billet steel.....	2.30c. to 2.75c.
Cold-finished steel bars and shafting—	
Rounds and hexagons.....	3.60c.
Flats and squares.....	4.10c.
Bands.....	3.65c.
Hoops.....	4.15c.
Black sheets (No. 24).....	3.95c.
Galvanized sheets (No. 24).....	4.80c.
Blue annealed sheets (No. 10).....	3.50c.
Spikes, standard railroad.....	3.55c.
Track bolts.....	4.55c.
Rivets, structural.....	3.60c.
Rivets, boiler.....	3.60c.
	Per Cent Off List
Machine bolts.....	60
Carriage bolts.....	60
Coach or lag screws.....	60
Hot-pressed nuts, squares, tapped or blank..	60
Hot-pressed nuts, hexagons, tapped or blank	60
No. 8 black annealed wire, per 100 lb.....	\$3.20
Common wire nails, base per keg..	\$2.90 to 3.00
Cement coated nails, base per keg..	2.90 to 3.00

Dealers continue to look for added strength and they do not hesitate to bid up railroad lists. A sale of 2000 tons of cast iron borings is reported at \$11.25, delivered, an advance of 50c. since the last consumer purchase. A scarcity exists in short rails and iron grades, notably iron angles, arch bars and axles. Railroads are said to have obtained close to \$13.50, delivered, for heavy melting, which is a reflection of a belief in the trade that two steel mills and possibly a third will soon be in the market.

#### Prices delivered consumers' yards, Chicago: Per Gross Ton

##### Basic Open-Hearth Grades:

Heavy melting steel.....	\$12.50 to \$13.00
Shoveling steel.....	12.50 to 13.00
Frogs, switches and guards, cut apart, and miscellaneous rails.	13.75 to 14.25
Hydraulic compressed sheets....	10.75 to 11.25
Drop forge flashings.....	9.75 to 10.25
Forged, cast and rolled steel car-wheels.....	15.50 to 16.00
Railroad tires, charging box size.	16.25 to 16.75
Railroad leaf springs, cut apart..	16.25 to 16.75

##### Acid Open-Hearth Grades:

Steel couplers and knuckles.....	15.00 to 15.50
Coil springs.....	16.50 to 17.00
Low phosphorus punchings.....	14.25 to 14.75

##### Electric Furnace Grades:

Axle turnings.....	12.50 to 13.00
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##### Blast Furnace Grades:

Axle turnings.....	10.75 to 11.25
Cast iron borings.....	10.75 to 11.25
Short shoveling turnings.....	10.50 to 11.00
Machine shop turnings.....	7.75 to 8.25

##### Rolling Mill Grades:

Iron rails.....	13.50 to 14.00
Rerolling rails.....	15.00 to 15.50

##### Cupola Grades:

Steel rails less than 3 ft.....	15.50 to 16.00
Angle bars, steel.....	14.75 to 15.25
Cast iron carwheels.....	14.00 to 14.50

##### Malleable Grades:

Railroad.....	13.75 to 14.25
Agricultural.....	12.50 to 13.00

##### Miscellaneous:

*Relaying rails, 56 to 60 lb.....	23.00 to 25.00
*Relaying rails, 65 lb. and heavier.	26.00 to 31.00

#### Per Net Ton

##### Rolling Mill Grades:

Iron angle and splice bars.....	14.00 to 14.50
Iron arch bars and transoms....	18.75 to 19.25
Iron car axles.....	21.50 to 22.00
Steel car axles.....	16.00 to 16.50
No. 1 railroad wrought.....	11.50 to 12.00
No. 2 railroad wrought.....	11.50 to 12.00
No. 1 bushelling.....	9.50 to 10.00
No. 2 bushelling.....	4.50 to 5.00
Locomotive tires, smooth.....	12.50 to 13.00
Pipes and flues.....	8.00 to 8.50

##### Cupola Grades:

No. 1 machinery cast.....	14.50 to 15.00
No. 1 railroad cast.....	13.50 to 14.00
No. 1 agricultural cast.....	13.50 to 14.00
Stove plate.....	12.00 to 12.50
Grate bars.....	11.75 to 12.25
Brake shoes.....	12.00 to 12.50

\*Relaying rails, including angle bars to match, are quoted f.o.b. dealers' yards.

## Koppers Co. Not Affiliated with U. G. I.

The statement appearing on page 85 of THE IRON AGE of Jan. 5 to the effect that the Koppers Co. is affiliated with the United Gas Improvement Co. calls for correction. The two companies are entirely separate and the only connection between them is the fact that the Philadelphia City Council recently authorized the building of a coke plant in Philadelphia, which will be financed and erected by the Koppers Co., while the gas produced will be sold to the United Gas Improvement Co. Details of that transaction were published in THE IRON AGE of Dec. 29 last, page 1831.

Employees of the General Electric Co. who have been in its service for six months or more are holders of about \$30,000,000 worth of General Electric Securities Corporation bonds, according to a statement of J. R. Lovejoy, president of the corporation and vice-president of the General Electric Co. Bondholders number 27,000, or about 42 per cent of the company's employees, and the average holding per person is approximately \$1,000.

# New York

## Large Orders Placed for Iron and Steel for Tunnel

NEW YORK, Jan. 10.—The inventory period, which for some foundries will last until the middle of the month, has adversely affected pig iron buying. Sales by local brokers during the week totaled only 3500 tons. Deliveries against contracts are moving forward in good volume, however, and in some cases iron that had been held up has been released for shipment. The Worthington Pump & Machinery Corporation, New York, has closed for 300 tons for its Cincinnati plant and about 500 tons for its Buffalo works, but has not yet bought against its inquiry for 400 tons for Holyoke, Mass. The New York Central Railroad is in the market for 235 tons for delivery at Frankfort, N. Y., or Elkhart, Ind. The iron called for includes 75 tons each of No. 2 plain and No. 2X, 50 tons of No. 1 and 35 tons of 8 per cent silicon. The Baldwin Locomotive Works is asking for prices on 2000 to 4000 tons for its plant at Eddystone, Pa. Prices are slightly firmer, with \$16.50, base furnace, the usual minimum on Buffalo foundry iron, and with some sales bringing \$17. No sales of eastern Pennsylvania foundry iron have been reported at less than \$19, base furnace, and a number of producers have advanced prices to \$19.50. The Mason & Hanger Co., contractor, New York, has divided an order for 54,000 tons of cast iron segments for the Fulton Street subway tunnel connecting Manhattan and Brooklyn between the Davies & Thomas Co., Catsauqua, Pa., and the Bethlehem Steel Co. The No. 2 furnace of Witherbee, Sherman & Co. at Port Henry, N. Y., was blown in Jan. 3.

Prices per gross ton, delivered New York district:	
Buffalo No. 2 fdy., sil. 1.75 to 2.25	\$21.41 to \$21.91
East. Pa. No. 2 fdy., sil. 1.75 to 2.25	20.39 to 21.52
East. Pa. No. 2 fdy., sil. 2.25 to 2.75	20.89 to 22.02
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	21.39 to 22.52

Freight rates: \$4.91 from Buffalo, \$1.39 to \$2.52 from eastern Pennsylvania.

**Reinforcing Bars.**—The market has seen little activity since the first of the year, and the small pending tonnage offers no immediate prospect of increased business. A State office building in Manhattan will require 120 tons. With small buying, distributors have had no difficulty in holding to the recently established mill price of 1.90c., Pittsburgh, and are quoting 2.20c., Youngstown warehouse, or 2.57½c., on cars at New York. Out of New York warehouses, the price is 2.80c. per lb. for lots of 5 tons or more, 2.95c. for lots of 2 to 5 tons and 3.24c. for less than 2 tons, all delivered at job.

**Cast Iron Pipe.**—Little new business is in the market, but most makers of gas and water pipe are fairly well sold up for 30 to 60 days and prices are maintained with \$28 per ton, base Birmingham, about the minimum. The Department of Purchase, New York, opened bids Jan. 9, on about 2200 tons of pipe and fittings. On the five sections covering pipe, bids were as follows: Section 1, 260 tons of 12-in., low bid \$37.10 per ton, National Cast Iron Pipe Co.; section 2, 595 tons of 8-in., low bid \$39.80, Donaldson Iron Co.; section 3, 595 tons of 8-in., low bid \$39.80 per ton, Donaldson Iron Co.; section 4, 595 tons of 8-in., low bid \$37.10 per ton, National Cast Iron Pipe Co.; section 5, 80 tons of 6-in., low bid \$37.65 per ton, National Cast Iron Pipe Co. On the fittings low bidders were R. D. Wood & Co., Thomasville Iron Co. and the Talladega Foundry & Machine Co. The Middlesex Water Co., Woodbridge, N. J., has taken bids on about 600 tons of water pipe. Charles A. Tenney & Co., Boston, recently closed on about 3000 tons of pipe for public utilities.

Prices per net ton, delivered New York: Water pipe 6-in. and larger, \$37.25 to \$38.25; 4-in. and 5-in., \$42.25 to \$43.25; 3-in., \$52.25 to \$53.25; Class A and gas pipe, \$4 to \$5 extra.

**Finished Steel.**—Somewhat of a lull has followed the fairly heavy specifications of the last week or two of December. Mill shipments of bars, shapes and plates are largely against fourth quarter contracts, little new

buying having developed. The extent to which sheet manufacturers covered their customers for first quarter at former prices will militate against the placing of much business at the new prices for some time to come. A buyer of galvanized sheets, with 200 tons to place, is reported to have been able to cover his requirements at 3.65c., Pittsburgh, regardless of the fact that he had no contract. Some makers of hot rolled strip steel have advanced prices to 1.85c., Pittsburgh, for sizes wider than 6 in. and to 2.05c., Pittsburgh, for the narrower widths. Extras on gages which meet competition of light plates and blue annealed sheets have also been put into effect, making these widths approximately the same in price as the competitive prod-

## Warehouse Prices, f.o.b. New York

	Base per Lb.
Plates and structural shapes.....	3.34c.
Soft steel bars and small shapes.....	3.24c.
Iron bars.....	3.24c.
Iron bars, Swedish charcoal.....	7.00c. to 7.25c.
Cold-finished shafting and screw stock—	
Rounds and hexagons.....	3.30c.
Flats and squares.....	3.80c.
Cold-rolled strip, soft and quarter hard,	
6.00c. to 6.25c.	
Hoops.....	4.49c.
Bands.....	3.99c.
Blue annealed sheets (No. 10 gage),	
3.34c. to 3.89c.	
Long terne sheets (No. 24 gage).....	5.80c.
Standard tool steel.....	12.00c.
Wire, black annealed.....	4.50c.
Wire, galvanized annealed.....	5.15c.
Tire steel, 1½ x ½ in. and larger.....	3.30c.
Smooth finish, 1 to 2½ x ¾ in. and	
larger.....	3.65c.
Open-hearth spring steel, bases.....	4.50c. to 7.00c.
Machine bolts, cut thread: Per Cent Off List	
¾ x 6 in. and smaller.....	.55 to 60
1 x 30 in. and smaller.....	.50 to 50 and 10
Carriage bolts, cut thread:	
¾ x 6 in. and smaller.....	.55 to 60
¾ x 20 in. and smaller.....	.50 to 50 and 10
Coach screws:	
¾ x 6 in. and smaller.....	.55 to 60
1 x 16 in. and smaller.....	.50 to 50 and 10
Boiler Tubes— Per 100 Ft.	
Lap welded steel, 2-in.....	\$17.33
Seamless steel, 2-in.....	20.24
Charcoal iron, 2-in.....	25.00
Charcoal iron, 4-in.....	67.00

## Discounts on Welded Pipe

Standard Steel—	Black	Galv.
¾-in. butt.....	46	29
¾-in. butt.....	51	37
1-3-in. butt.....	53	39
2½-6-in. lap.....	48	35
7 and 8-in. lap.....	44	17
11 and 12-in. lap.....	37	12
Wrought Iron—		
¾-in. butt.....	5	+19
¾-in. butt.....	11	+9
1-1½-in. butt.....	14	+6
2-in. lap.....	5	+14
3-6-in. lap.....	11	+6
7-12-in. lap.....	3	+16

## Tin Plate (14 x 20 in.)

	Prime	Seconds
Coke, 100 lb. base box.....	\$6.45	\$6.20
Charcoal, per box—	A	AAA
IC.....	\$9.70	\$12.10
IX.....	12.00	14.25
IXX.....	13.90	16.00

## Terne Plate (14 x 20 in.)

IC—20-lb. coating.....	\$10.00 to \$11.00
IC—30-lb. coating.....	12.00 to 13.00
IC—40-lb. coating.....	13.75 to 14.25

## Sheets, Box Annealed—Black, C. R. One Pass

	Per Lb.
Nos. 18 to 20.....	3.90c. to 4.00c.
No. 22.....	4.05c. to 4.15c.
No. 24.....	4.10c. to 4.20c.
No. 26.....	4.20c. to 4.30c.
No. 28*.....	4.35c. to 4.45c.
No. 30.....	4.60c. to 4.70c.

## Sheets, Galvanized

	Per Lb.
No. 14.....	4.35c.
No. 16.....	4.45c.
No. 18.....	4.50c. to 4.60c.
No. 20.....	4.65c. to 4.75c.
No. 22.....	4.70c. to 4.80c.
No. 24.....	4.85c. to 4.95c.
No. 26.....	5.10c. to 5.20c.
No. 28*.....	5.35c. to 5.45c.
No. 30.....	5.75c. to 5.85c.

\*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.



ucts. In structural steel the principal letting was 9000 tons for shields for the Fulton Street tunnel of the New York subway system, which will be fabricated by the American Bridge Co. Bids are being taken on an additional 7800 tons for subway work.

*Mill prices per lb., delivered New York:* Soft steel bars, 2.14c.; plates, 2.12½c.; structural shapes, 2.09½c.; bar iron, 2.14c.

**Warehouse Business.**—The new year has begun with a good volume of purchasing from stock. There is a moderate demand for structural material in small lots and plate users are quite active. Quantity extras on cold rolled shafting and screw stock have been revised so that the minimum quantity on which no extra is charged is 4000 instead of 6000 lb. An extra of 20c. per 100 lb. applies on purchases of less than 4000 lb. and more than 2000 lb.

**Coke.**—Standard foundry is substantially unchanged at about \$4 per net ton, Connellsville, for prompt shipment. Furnace coke, which developed some strength on the recent report that output was being curtailed, is again obtainable at less than \$3 per ton, Connellsville. The local producer of by-product coke has reduced prices from \$8.75 per ton, f.o.b. ovens, to \$8.30 per ton for foundry coke and to \$8 per ton for screened sizes. Delivered prices on Connellsville foundry coke are: To northern New Jersey, \$8.03; to New York or Brooklyn, \$8.79; to Newark or Jersey City, N. J., \$7.91. By-product foundry coke, on the new basis of \$8.30 per net ton, f.o.b. ovens, is quoted at \$9 to \$9.40, delivered Newark or Jersey City.

**Old Material.**—New contracting is confined to small tonnages of material. Prices are firm and unchanged with a fair volume of tonnage moving to eastern Pennsylvania consumers. No. 1 heavy melting steel continues at \$13.50 per ton, delivered to Bethlehem, Coatesville, Conshohocken, Pa., or Claymont, Del. On shipments to a consumer in Lebanon, Pa., forge fire is being purchased at \$10.50 per ton, delivered, and specification pipe at \$12.50 to \$13 per ton. Yard grade of heavy melting steel is quoted at \$11 per ton, delivered Phoenixville or Harrisburg, Pa. Mixed borings and turnings are quiet at \$10 per ton, delivered to Bethlehem or Swedeland, Pa.

*Dealers' buying prices per gross ton, New York:*

No. 1 heavy melting steel.....	\$10.00 to \$10.85
Heavy melting steel (yard).....	6.25 to 7.25
No. 1 heavy breakable cast.....	11.25 to 12.00
Stove plate (steel works).....	8.25 to 8.75
Locomotive grate bars.....	8.25 to 8.50
Machine shop turnings.....	6.50 to 7.50
Short shoveling turnings.....	6.50 to 7.50
Cast borings (blast furnace or steel works).....	6.75 to 7.25
Mixed borings and turnings.....	6.50 to 7.50
Steel car axles.....	17.00 to 17.50
Iron car axles.....	23.75 to 24.75
Iron and steel pipe (1 in. diam., not under 2 ft. long).....	8.75 to 9.25
Forge fire.....	6.50 to 7.00
No. 1 railroad wrought.....	10.50 to 11.00
No. 1 yard wrought, long.....	9.00 to 9.50
Rails for rolling.....	10.50 to 11.00
Cast iron carwheels.....	11.25 to 11.75
Stove plate (foundry).....	8.75 to 9.25
Malleable cast (railroad).....	10.00 to 10.50
Cast borings (chemical).....	11.00 to 12.00

*Prices per gross ton, delivered local foundries:*

No. 1 machinery cast.....	\$13.50 to \$14.00
No. 1 heavy cast (columns, building materials, etc.), cupola size	11.50 to 12.00
No. 2 cast (radiators, cast boilers, etc.).....	11.00 to 11.50

**Warehouse Prices, f.o.b. Cleveland**

	Base per Lb.
Plates and structural shapes.....	3.00c.
Soft steel bars.....	3.00c.
Reinforcing steel bars.....	2.25c. to 2.75c.
Cold-finished rounds and hexagons.....	3.65c.
Cold-finished flats and squares.....	4.15c.
Hoops and bands.....	3.65c.
Cold-finished strip.....	*5.95c.
Black sheets (No. 24).....	3.75c.
Galvanized sheets (No. 24).....	4.40c. to 4.50c.
Blue annealed sheets (No. 10).....	3.25c.
No. 9 annealed wire, per 100 lb.....	\$2.90
No. 9 galvanized wire, per 100 lb.....	3.35
Common wire nails, base per keg.....	2.90

\*Net base, including boxing and cutting, to length.

## Cleveland

### Steel Business Improved—Sheet Bars \$1 Lower—Wide Strips Higher

CLEVELAND, Jan. 10.—The steel industry is feeling the effects of the increase in production schedules by automobile manufacturers and is getting a good volume of specifications from that source, particularly for forging bars, sheets, hot and cold rolled strip and alloy steel. With heavy specifications for steel bars, plates and structural material before the expiration on Dec. 31 of contracts at 1.75c., Pittsburgh, an expected lull in orders developed in the past week. However, mills during the week took a fair amount of small-lot business at 1.80c., which appears to be holding firmly in this market. Sheet and hot-rolled strip buyers were not restricted in their low-price contracts to December specifications; consequently they are still sending in good orders for these products at lower prices than the mills are now asking. Stamping plants in this territory are now running at capacity on automotive work and most of the forge shops are busy. The Ford Motor Co. is ordering steel more freely than recently and during the week placed specifications with an Ohio mill for 1000 tons of sheets.

Concessions of \$1 or more a ton have appeared on sheet bars. Hot strip mills are attempting to stabilize prices on wide strip and equalize them with blue annealed sheets and light plates by the adoption during the week of new prices on strip 12-gage and heavier, 12 to 24 in. wide. At the same time they announced a price advance of \$1 a ton.

A projected Detroit River tunnel will require 4000 tons of structural material. Lake shipyards have an inquiry for a fire tug for Chicago requiring 250 tons of plates.

**Pig Iron.**—The market is still moderately active, although the heavy buying movement that lasted for several weeks has subsided. Cleveland interests during the week sold approximately 25,000 tons of foundry and malleable or about half as much as during some of the previous weeks. A Michigan foundry purchased 5000 tons, but a large share of the week's orders were small lots. Most consumers are now covered for the quarter. Inquiry has fallen off, although one producer is quoting on about 12,000 tons. Some of the Lake furnaces that have good order books are showing less disposition to reach out for business in highly competitive districts where they must absorb a high freight rate. A few of the Lake furnaces are now holding to a minimum of \$17 for foundry and malleable iron and to the regular silicon differentials. While \$16.50 has not entirely disappeared, \$16.75 seems to have become the more common minimum quotation. In Michigan there is a range of \$17.50 to \$18. Some small lot sales are reported in the Valley district at \$17.25. Shipping orders, which dropped off in December, have increased materially in the past week. The Corrigan, McKinney Steel Co., has relighted a furnace that was out for repairs and has now all of its Cleveland furnaces in blast.

*Prices per gross ton at Cleveland:*

N'th'n No. 2 fdy., sil. 1.75 to 2.25.....	\$18.50
Southern fdy., sil. 1.75 to 2.25.....	22.00
Malleable.....	18.50
Ohio silvery, 8 per cent.....	28.00
Basic, Valley furnace.....	17.00
Standard low phos., Valley furnace.....	\$26.50 to 27.00

Prices, except on basic and low phosphorus, are delivered Cleveland. Freight rates: 50c. from local furnaces; \$3 from Jackson, Ohio; \$6 from Birmingham.

**Iron Ore.**—On Jan. 1 there was 6,604,339 tons of Lake Superior ore on docks at Lake Erie ports as compared with 7,139,610 tons on the same date a year ago. Shipments from these docks during December were 340,322 tons as compared with 562,404 tons in December, 1926.

**Semi-Finished Steel.**—A price reduction on sheet bars of \$1 a ton or more from the \$34 price that prevailed during the last quarter has been made by a Cleveland producer, which reports the closing of contracts with most of its trade at an average price of \$33, Cleveland, the price depending on the location of consumer's plant. Billets and slabs are being quoted

on the same price basis. Sheet bars are reported available from another source for early shipment on a Youngstown basis of \$32.

**Sheets.**—Mills are getting heavy specifications against low-priced contracts placed late in the year and a moderate amount of small-lot business at the new prices. The market has a firmer tone and small-lot sales are being made at 2.90c., Pittsburgh, for black and 2.05c. to 2.10c. for blue annealed. Some galvanized sheets have been sold at 3.75c., Pittsburgh, although these are still available at 3.65c. Consumers bought so freely at the old prices that not much of a test of the market on round-lot business is expected for several weeks.

**Cold Rolled Strip.**—Demand has been stimulated by the increased production by automobile manufacturers and orders are more plentiful than for some time. Prices are steady at 2.75c., Cleveland, for three tons and over and at 3c. for smaller lots.

**Reinforcing Bars.**—Several good jobs are still pending but inquiry is light. On billet steel bars, quotations of 1.75c., Cleveland, are still reported. Rail steel bars are unchanged at 1.65c., mill.

**Warehouse Business.**—Orders are light but are expected to pick up as soon as inventories are over. Jobbers have placed in effect the new extras on steel bars but as yet have made no advance on sheets to reflect the higher mill prices.

**Old Material.**—A Valley district mill has purchased heavy melting steel for a month's needs at \$15.25 for No. 1 material, or the same price it paid in December. Local mills are making no new purchases, but they have started this month to take shipments of steel-making scrap on contracts more freely. Considerable of the Detroit scrap that was going to Buffalo when Lake boats were running is now being shipped to Canton and Valley district consumers. While the market generally has a firm tone quotations are unchanged and there is not much expectation of higher prices. Dealers are able to buy heavy melting steel for shipment against outstanding orders at the prices which they have paid for several weeks.

Prices per gross ton, delivered consumers' yards:

Basic Open-Hearth Grades	
No. 1 heavy melting steel.....	\$13.75 to \$14.00
No. 2 heavy melting steel.....	13.25 to 13.50
Compressed sheet steel.....	12.75 to 13.00
Light bundled sheet stampings...	11.50 to 11.75
Drop forge flashings.....	12.50 to 13.00
Machine shop turnings.....	9.00 to 9.25
No. 1 railroad wrought.....	11.50 to 12.00
No. 2 railroad wrought.....	13.50 to 14.00
No. 1 busheling.....	11.50 to 12.00
Pipes and flues.....	9.00 to 9.50
Steel axle turnings.....	12.50 to 13.00
Acid Open-Hearth Grades	
Low phosphorus forging crops...	16.50 to 17.00
Low phosphorus, billet, bloom and slab crops.....	17.00 to 17.50
Low phosphorus sheet bar crops...	16.50 to 17.00
Low phosphorus plate scrap.....	16.00 to 16.50
Blast Furnace Grades	
Cast iron borings.....	10.25 to 10.75
Mixed borings and short turnings	10.25 to 10.75
No. 2 busheling.....	10.25 to 10.75
Cupola Grades	
No. 1 cast.....	16.00 to 16.50
Railroad grate bars.....	11.00 to 12.00
Stove plate.....	12.00 to 12.50
Rails under 3 ft.....	18.00 to 18.50
Miscellaneous	
Railroad malleable.....	15.00 to 15.50
Rails for rolling.....	16.25 to 16.50

**Hot Rolled Strip.**—A new price schedule on hot rolled strip steel, 12-gage and heavier, 12 in. to 24 in. wide, has been adopted by some of the mills to equalize prices on wide hot strip with two keenly competitive products, light plates and blue annealed sheets. Quotations shown in the new schedule are 3/16 in. or No. 7-gage, 2c., Pittsburgh; No. 8 gage, 2.10c.; Nos. 9 and 10 gages, 2.20c.; Nos. 11 and 12 gages, 2.25c. These prices probably will be quite generally adopted. At the same time some of the mills announced an advance of \$1 a ton in the regular price on strip not covered in the above classification. The new prices are 1.85c., Pittsburgh, for material 6 in. and wider and 2.05c. for narrower than 6 in.

**Bolts, Nuts and Rivets.**—Specifications for bolts and nuts have increased since the first of the year and some makers have been able to increase their opera-

tions. Considerable business is coming from the automotive industry. Prices are firm. Nearly all buyers are now under contract. Rivet orders show some gain.

**Fluorspar.**—The only activity in gravel fluorspar was in car lots, which have brought \$15, mines, indicating that the market has settled to that price for small lots. The market has not been tested on a large tonnage.

**Coke.**—The recent cold spell has stimulated the demand for by-product coke for domestic use but the price is unchanged at \$4.50, ovens, for egg size. Connellsville foundry coke is weak, with a price range from \$3.75 to \$4.50, except for premium brands, some of which are quoted as high as \$5.35. Foundry heating coke ranges from \$2.75 to \$3.25.

## Philadelphia

### Steel and Pig Iron Improved—Pennsylvania Railroad Inquires

PHILADELPHIA, Jan. 10.—Sentiment is decidedly better both in steel and pig iron as a result of the moderate improvement in purchasing since the beginning of the year. In some cases mills report more contracts for first quarter than in any previous quarter for the past year or more, consumers apparently being convinced that prices will not be lower during the current quarter and therefore are willing to protect themselves. Some structural steel contracts made at lower prices in the fourth quarter are being held open to allow more time to fabricators, who have been unable to completely prepare specifications on certain construction work.

Requirements of the Pennsylvania Railroad for first quarter, bids on which open Jan. 20, call for about 25,000 tons of plates for car and locomotive work, about 8000 tons of bars, 2000 tons of shapes and small lots of bands and spring steel. Bids were opened Jan. 6 on 1100 tons of blue annealed, black and galvanized sheets, 250,000 track bolts, 1,600,000 spikes, 24,000 wrought steel freight car wheels, and 460 piston heads.

Pig iron is more active and a good tonnage was booked in the past week. Prices have been advanced 50c. a ton on foundry iron, but the new level is as yet untested. Scrap buying shows no improvement but prices are firmer.

**Pig Iron.**—Purchases in the past week are estimated at more than 15,000 tons, the greater part of which was in small tonnages. Consumers are specifying more freely against contracts. An advance on foundry iron of 50c. a ton to \$19.50, base, has received no test and most outstanding quotations are at the former level. One of the larger foundry iron purchases of the past week was about 2000 tons by the East Penn Foundry Co., Macungie, Pa., divided between two furnaces. The Baldwin Locomotive Works is inquiring for about 4000 tons of floor iron, 2.50 to 3 per cent silicon, and cylinder iron, 1 to 1.40 per cent silicon. A number of inquiries for a few hundred tons each are also reported and some

#### Warehouse Prices, f.o.b. Philadelphia

	Base per Lb.
Plates, 1/4-in. and heavier.....	2.50c. to 2.60c.
Plates, 3/8-in.....	2.80c. to 3.00c.
Structural shapes.....	2.50c. to 2.60c.
Soft steel bars, small shapes and iron bars (except bands).....	2.50c. to 2.60c.
Round-edge iron.....	3.50c.
Round-edge steel, iron finished, 1 1/2 x 1 1/2 in.....	3.50c.
Round-edge steel, planished.....	4.30c.
Reinforcing steel bars, square, twisted and deformed.....	2.50c. to 3.00c.
Cold-finished steel, rounds and hexagons.....	3.25c. to 5.25c.
Cold-finished steel, squares and flats.....	3.75c. to 5.75c.
Steel hoops.....	3.85c. to 4.15c.
Steel bands, No. 12 gage to 1/8-in., inclusive.....	3.60c. to 3.90c.
Spring steel.....	5.00c.
Black sheets (No. 24).....	4.25c. to 4.35c.
Galvanized sheets (No. 24).....	5.10c. to 5.20c.
Blue annealed sheets (No. 10)...	3.15c. to 3.30c.
Diamond pattern floor plates—	
1/4-in.....	5.30c.
3/8-in.....	5.50c.
Rails.....	3.20c.
Swedish iron bars.....	6.60c.



small lots of low phosphorus have been closed. Basic iron is unchanged.

**Prices per gross ton at Philadelphia:**

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$19.76 to \$20.26
East. Pa. No. 2X, 2.25 to 2.75 sil.	20.26 to 20.76
East. Pa. No. 1X.	20.76 to 21.26
Basic (delivered eastern Pa.)	19.50 to 19.75
Gray forge	19.50 to 20.00
Malleable	21.00 to 21.50
Standard low phos. (f.o.b. New York State furnace)	23.00 to 24.00
Copper bearing low phos. (f.o.b. furnace)	23.50 to 24.00
Virginia No. 2 plain, 1.75 to 2.25 sil.	24.54 to 25.04
Virginia No. 2X, 2.25 to 2.75 sil.	25.04 to 25.54

Prices, except as specified otherwise, are delivered Philadelphia. Freight rates: 76c. to \$1.64 from eastern Pennsylvania furnaces; \$4.54 from Virginia furnaces.

**Billets.**—Purchasing continues small and is almost entirely for immediate requirements. Quotations are \$33 per ton, Pittsburgh, for rerolling billets and \$38 per ton, Pittsburgh, for forging quality.

**Bars.**—Quotations are firm at 1.80c. per lb., Pittsburgh, or 2.12c., delivered Philadelphia. The list of the Pennsylvania Railroad includes about 8000 tons of bars for first quarter. Consumers are quite freely making contracts for first quarter.

**Shapes.**—Slight irregularity of prices is evident with quotations of 2.07c. to 2.08c. per lb., base, delivered Philadelphia.

**Plates.**—The price of 2.05c. per lb., delivered Philadelphia, is being maintained, quotations being based on 1.95c., Coatesville mills. In cases where a Pittsburgh base would be of advantage to a consumer, Eastern mills have been willing to quote on a basis of 1.75c. per lb., Pittsburgh. On the Pennsylvania Railroad list of first quarter requirements is a total of 25,000 tons of plates.

**Sheets.**—There is a moderate demand for sheets, but prices are not strong. Blue annealed sheets are quoted at 2.10c. per lb., base Pittsburgh, on widths up to 40 in. Wider than 40-in. sheets are on a 2.20c. per lb. Pittsburgh base. Buyers have offered to enter into contracts at 2.10c., base, per lb., but some mills show unwillingness to go below 2.15c. on first quarter contracts. This is also evident in black sheets, which are currently quoted at 2.75c. to 2.80c. per lb., base Pittsburgh, but for which makers are asking 2.90c. per lb., base, on contracts. Galvanized sheets are quiet and fairly firm at 3.75c. per lb., Pittsburgh base.

**Warehouse Business.**—There is considerably more activity and prices are slightly firmer on most products.

**Old Material.**—Unaffected by the slight improvement that has appeared in the new material field, the scrap market continues quiet and prices substantially unchanged. No. 1 forge fire, railroad grate bars and stove plate are slightly stronger.

**Prices per gross ton delivered consumers' yards, Philadelphia district:**

No. 1 heavy melting steel	\$13.50 to \$14.00
Scrap T rails	13.00 to 13.50
No. 2 heavy melting steel	11.00 to 11.50
No. 1 railroad wrought	15.25 to 15.75
Bundled sheets (for steel works)	10.50 to 11.00
Machine shop turnings (for steel works)	11.00
Heavy axle turnings (or equivalent)	12.00 to 12.50
Cast borings (for steel works and rolling mill)	11.00 to 11.25
Heavy breakable cast (for steel works)	15.50 to 16.00
Railroad grate bars	12.50 to 13.00
Stove plate (for steel works)	12.50 to 13.00
No. 1 low phos., heavy, 0.04 per cent and under	18.00 to 18.50
Couplers and knuckles	16.00
Rolled steel wheels	15.50 to 16.00
No. 1 blast furnace scrap	10.00 to 10.50
Machine shop turnings (for rolling mill)	11.00 to 11.50
Wrought iron and soft steel pipes and tubes (new specifications)	13.00 to 13.50
Shafting	17.50 to 18.00
Steel axles	19.00 to 20.00
No. 1 forge fire	11.00 to 12.00
Steel rails for rolling	15.00 to 15.50
Cast iron carwheels	15.50
No. 1 cast	16.00 to 16.50
Cast borings (for chemical plant)	15.00 to 15.50

**Imports.**—In the last week of December and the first week of January a total of 3932 gross tons of pig iron was received at this port, of which 2831 tons came from

India and 99 tons from the Netherlands. In the same period 7400 tons of Algerian iron ore was received, 100 tons of British ferromanganese, 45 tons of shapes from France and 21 tons of steel bars and 11 tons of iron bars from Sweden.

## Another Increase in Steel Corporation's Unfilled Orders

A fairly large increase in the unfilled orders of the United States Steel Corporation is reported for December. The total on Dec. 31 was 3,972,874 tons, an increase of 518,430 tons over the 3,454,444 tons on Nov. 30. This compares with one of 113,404 tons in November. A year ago the unfilled orders were 3,960,969 tons. The following table gives the unfilled tonnage by months, commencing with January, 1925:

	1927	1926	1925
Jan. 31	3,800,177	4,882,739	5,037,323
Feb. 28	3,597,119	4,616,822	5,284,771
Mar. 31	3,553,140	4,379,935	4,863,564
April 30	3,456,132	3,867,976	4,446,568
May 31	3,050,941	3,649,250	4,049,800
June 30	3,053,246	3,478,642	3,710,458
July 31	3,142,014	3,602,522	3,539,467
Aug. 31	3,196,037	3,542,335	3,512,803
Sept. 30	3,148,113	3,593,509	3,717,297
Oct. 31	3,341,040	3,683,661	4,109,183
Nov. 30	3,454,444	3,807,447	4,581,780
Dec. 31	3,972,874	3,960,969	5,033,364

The high record in unfilled orders was 12,183,093 tons at the close of April, 1917. The lowest was 2,674,757 tons on Dec. 31, 1910.

## Automotive Parts and Accessories Manufacturers Are Merged

The Kingston Products Corporation, Kokomo, Ind., has been formed as a consolidation of the Kokomo Brass Works, Byrne, Kingston & Co. and the Kokomo Electric Co., all of Kokomo. The three companies have been closely allied for more than 25 years, but the merger will bring about closer cooperation by the engineering, executive and sales organizations than was possible before.

Products of the Kokomo Brass Works, which have been marketed by Byrne, Kingston & Co., include carburetors, Oil-Vac fuel feeding systems and tractor governors. The company also makes a varied line of water and oil pumps, motor parts and bronze, brass and aluminum castings. The Kokomo Electric Co. manufactures coils, switches, ignition points, generator cutouts, car heaters and B current supply units for radio sets.

J. Paul Johnson, president of the new company, is prominently identified with Kokomo industry, being an officer and a director of the Hoosier Iron Works, the Kokomo Malleable Iron Works, the Kokomo Stamped Metal Co. and the Kokomo Lithographic Co. Karl Krebsner, vice-president and factory manager of the new company, has been associated with the Kokomo Brass Works for 23 years, the last eight as general factory manager. Paul T. Burke, the new secretary and general sales manager, has been general sales manager of Byrne, Kingston & Co. for 10 years. Frank C. Ryan, treasurer, has served four years as Chicago branch manager for the three merging companies and more recently has been assistant general manager of the brass works. The rest of the personnel of the three companies will remain practically unchanged.

## Campbell Heads Interstate Commerce Commission for 1928

Johnston B. Campbell has been elected chairman of the Interstate Commerce Commission for 1928, succeeding John J. Esch. Mr. Campbell presided at the general investigation of freight rates on iron and steel products in Official Classification territory which was conducted during the first half of 1927. The commission is at present engaged in an examination of the testimony and briefs introduced into the case.

## San Francisco

### Large Steel Bookings Feature First Week of New Year

SAN FRANCISCO, Jan. 7 (By Air Mail).—Bookings have involved some good-sized tonnages, starting the new year encouragingly. The outlook in most lines is hopeful. Outstanding among the awards were 8500 tons of reinforcing steel for the Coyote Point bridge, San Francisco, taken by the Bethlehem Steel Co.; 2100 tons of shapes for two bridges near Seattle, Wash., for the Simpson Logging Co., placed with the United States Steel Products Co., and 1100 tons of shapes for an apartment at Long Beach, Cal., awarded to the McClintic-Marshall Co.

Tabulations of building permits for 1927 show that the majority of the cities on the Pacific Coast were ahead of the aggregate for the previous year. Los Angeles led the other cities with a total of \$123,027,-239. Seattle and Portland issued \$29,070,080 and \$28,-973,155, respectively.

**Pig Iron.**—Sales and inquiries this week were limited to unimportant lots. No changes in prices are noted.

Prices per gross ton at San Francisco:

*Utah basic	.....	\$25.00 to \$26.00
*Utah foundry, sil. 2.75 to 3.25	.....	25.00 to 26.00
**Indian foundry, sil. 2.75 to 3.25	.....	24.00 to 25.00
**German foundry, sil. 2.75 to 3.25	.....	24.25

\*Delivered San Francisco.

\*\*Duty paid, f.o.b. cars San Francisco.

**Shapes.**—Demand for structural steel continues good, and during the first week of the year over 4000 tons was placed. Among the larger projects pending are 2200 tons for the Northern Life Insurance Building at Seattle; 4000 tons for the Capwell Store at Oakland, Cal., and 500 tons for a plant at Tacoma, Wash., for the Union Bag Co. Imports of structural shapes in October totaled 2041 tons, compared with 2482 tons for September. Of this total, 1417 tons was delivered in the San Francisco district. Prices on domestic material remain firm at 2.35c., c.i.f. Coast ports.

**Plates.**—The Steel Tank & Pipe Co. of Oregon was awarded 600 tons of 20 to 30 in. riveted pipe for the Port Townsend, Wash., pipe line. Another 400 tons may be placed unless wood stave pipe is decided upon. The only other award was booked by the Pacific Coast Engineering Co., Oakland, for 175 tons for 20 in. pontoon pipe for the U. S. Engineers' Office, San Francisco. The only pending project of importance is the Petroleum Securities Co.'s inquiry for oil storage tanks for its new Richmond plant. From 700 to 2500 tons of material is involved, depending upon the number and size of the tanks. An award is expected soon. Prices appear to be uniform at 2.25c., c.i.f.

**Bars.**—Imports of bars, both merchant and reinforcing, for October aggregated 1316 tons, compared with 4822 tons for the previous month. Of this total, Los Angeles took 854 tons and San Francisco 404 tons. One of the largest reinforcing bar awards placed during the past year was booked by the Bethlehem Steel Co. and called for 8500 tons for the Coyote Point bridge across San Francisco Bay. The largest pending inquiries involve 835 tons for the North Branch Canal Project, Ellensburg, Wash., and 750 tons for the Veterans' Hospital at Portland, Ore.

**Cast Iron Pipe.**—Demand for cast iron pipe continues good. Awards were not heavy, but some large lots are pending. Santa Ana, Cal., placed 231 tons of 6 and 12 in. B pipe with the American Cast Iron Pipe Co.; the National Cast Iron Pipe Co. booked 350 tons

of 20 in. B for Pasadena, Cal., and B. Nicoll & Co. took 129 tons of 6 and 10 in. B for Eureka, Cal. Pending business follows:

Portland, Ore., 2825 tons, 6 to 24 in. B. Bids opened.  
The Dalles, Ore., 340 tons, 4 to 12 in. D. Bids Jan. 9.  
Spokane, Wash., 1246 tons, 2 to 12 in. B. Bids Jan. 12.  
Nogales, Ariz., 373 tons, 2 to 10 in. B. Bids opened.  
El Segundo, Cal., 125 tons, 4 to 10 in. B. Bids Jan. 13.  
Lynwood, Cal., 217 tons, 6 to 10 in. B. Improvement Long Beach Boulevard; O. U. Miracle, San Diego, Cal., low bidder.  
Los Angeles, 401 tons, 2 to 10 in. B, County Water Works District No. 10. United States Cast Iron Pipe & Foundry Co., low bidder.  
San Diego, Cal., 155 tons, 4 to 6 in. B, improvement Boundary Street. Bids Jan. 16.  
San Diego, Cal., 271 tons, 2 to 10 in. C, improvement Twenty-eighth Street. Bids Jan. 16.  
San Diego, Cal., 264 tons, 2 to 6 in. C, improvement Muir Avenue. Bids Jan. 23.  
San Diego, Cal., 153 tons, 6 to 10 in. B, improvement Main Street; Butterfield Construction Co., San Diego, low bidder.

Importations of cast iron pipe in October totaled 2043 tons, compared with 2301 tons for the preceding month. Los Angeles took 1182 tons of this total.

**Steel Pipe.**—The only inquiry of importance involves from 200 to 400 tons of 3½ to 16 in. plain-end line pipe for the Petroleum Securities Co.'s new plant at Richmond, Cal. The Grinnell Co. booked 625 tons of 8 in. seamless pipe for Los Angeles. Imports of tubular goods in October were 1533 tons, of which San Francisco took 1172 tons.

**Rails.**—The Western Pacific has placed 10,000 tons of 85 lb. rail with the Colorado Fuel & Iron Co. and, in addition, has placed 400,000 rail anchors, totaling about 600 tons, with various Eastern producers. No action has been taken by the Southern Pacific Co., San Francisco, on its inquiry for 28,000 kegs of track spikes and 3200 kegs of track bolts, totaling 3120 tons. This company will open bids on Jan. 10 for 880,800 tie plates, totaling close to 4500 tons.

**Coke.**—Demand for foundry coke reflected the same quiet condition that prevailed in the pig iron market, and sales and inquiries were limited to small lots for prompt shipment. Imports in October totaled 7658 tons. Of this total Los Angeles took 2946 and San Francisco 2916 tons. Prices continue unchanged.

## Birmingham

### Cold Weather Retards Foundry Operations in Alabama

BIRMINGHAM, Jan. 10.—Cold weather retarded the return of foundry operations to a normal schedule following the holidays, and this has affected the pig iron market both from the standpoint of sales and of shipments. Only a small amount of business was booked last week, although there were numerous inquiries which are expected to produce new tonnage within the next week or so. Shipments have been correspondingly low. Birmingham furnaces have sold considerable iron for the first quarter and the outlook is satisfactory. Quotations continue on a \$16 base. Eighteen furnaces are in blast, the same as during the past two months.

Prices per gross ton, f.o.b. Birmingham district furnaces:

No. 2 foundry, 1.75 to 2.25 sil.	.....	\$16.00
No. 1 foundry, 2.25 to 2.75 sil.	.....	16.50
Basic	.....	16.00

**Finished Steel.**—There has been a resumption of buying since the first of the year and the outlook is favorable. Prices are unchanged. Structural steel fabricators and reinforcing bar manufacturers report only a small amount of new business, but are looking forward to an early improvement. The Tennessee company has been awarded a liberal share of the new rail and car orders and now has considerable advance tonnage in these lines as well as in miscellaneous steel lines. This company is now averaging seven open-hearth furnaces at Ensley and four at Fairfield. The Gulf States Steel Co. is operating four at Alabama City.

**Cast Iron Pipe.**—Judged by November and Decem-

#### Warehouse Prices, f.o.b. San Francisco

	Base per Lb.
Plates and structural shapes	..... 3.15c.
Soft steel bars	..... 3.15c.
Small angles, ½-in. and over	..... 3.15c.
Small angles, under ½-in.	..... 3.55c.
Small channels and tees, ¾-in. to 2¾-in.	..... 3.75c.
Spring steel, ½-in. and thicker	..... 5.00c.
Black sheets (No. 24)	..... 4.80c.
Blue annealed sheets (No. 10)	..... 3.75c.
Galvanized sheets (No. 24)	..... 5.35c.
Structural rivets, ½-in. and larger	..... 5.65c.
Common wire nails, base per keg	..... \$3.35
Cement coated nails, 100-lb. keg	..... 3.35



ber inquiries, first quarter tonnage is expected to be of fair volume. Only a small amount of business has been placed to date. Birmingham plants obtained 2000 tons from St. Louis, the only order of any consequence. Plants have been slow in resuming operations but are now back at about the same basis as in early December. The base price is around \$28.50. Inquiries for first quarter are encouraging and there have also been some for second quarter.

**Coke.**—There is a general improvement in foundry coke demand and shipments. Surplus stocks have been used up and foundries are back in the market. Early in December there was a curtailment of buying and shipments that continued during most of that month. There has been no change in the price, \$5 per net ton.

**Old Material.**—Business has been slow in developing. Demand is about at the same level as in December. Prices have not changed.

*Prices per gross ton, delivered Birmingham district consumers' yards:*

Heavy melting steel.....	\$10.00 to \$10.50
Scrap steel rails.....	11.00 to 11.50
Short shoveling turnings.....	8.00 to 8.50
Cast iron borings.....	8.00 to 8.50
Stove plate.....	13.00 to 14.00
Steel axles.....	19.00 to 20.00
Iron axles.....	18.00 to 20.00
No. 1 railroad wrought.....	10.00 to 11.00
Rails for rolling.....	12.00 to 13.00
No. 1 cast.....	14.50 to 15.00
Tramcar wheels.....	12.50 to 13.50
Cast iron carwheels.....	12.00 to 13.00
Cast iron borings, chemical.....	13.50 to 14.00

## St. Louis

### Pig Iron Sales Increase—Steel Demand Is Light

ST. LOUIS, Jan. 10.—The new year made a good start in pig iron sales. Producers say that indications point to a price advance. The Granite City maker's sales for the week totaled 12,000 tons, of which about 2000 tons was basic, 750 tons malleable and the remainder foundry. The largest order was 5000 tons of foundry iron for a Southern Illinois melter. Shipments of the Granite City maker for December were the heaviest of any month last year, and its unfilled orders amount to more than 100,000 tons. A leading Southern interest sold 450 tons last week.

*Prices per gross ton at St. Louis:*

No. 2 fdy., sil. 1.75 to 2.25 f.o.b. Granite City, Ill. ....	\$19.50 to \$20.00
Northern No. 2 fdy., delivered St. Louis .....	20.66
Southern No. 2 fdy., delivered....	20.42
Northern malleable, delivered....	20.66
Northern basic, delivered.....	20.66

Freight rates: 81c. from Granite City to St. Louis; \$2.16 from Chicago; \$4.42 from Birmingham.

**Coke.**—With zero weather prevailing in St. Louis and vicinity, sales of domestic grades of coke were greatly stimulated. Buying of foundry grades is small.

**Finished Iron and Steel.**—Specifications against contracts for plates, shapes and bars have been light, and new business much lighter. Warehouse business is very quiet. The only inquiry before the market is from the Wabash Railroad for plates, shapes, bars and billets for the first half. The new year has brought very little for the fabricators of structural steel, who need business badly. The only award of the week was 300 tons

#### Warehouse Prices, f.o.b. St. Louis

	Base per Lb.
Plates and structural shapes.....	3.25c.
Bars, soft steel or iron.....	3.15c.
Cold-finished rounds, shafting and screw stock .....	3.75c.
Black sheets (No. 24).....	4.80c.
Galvanized sheets (No. 24).....	5.25c.
Blue annealed sheets (No. 10).....	3.60c.
Black corrugated sheets (No. 24).....	4.50c.
Galvanized corrugated sheets.....	5.30c.
Structural rivets .....	3.75c.
Boiler rivets .....	3.75c.
	Per Cent Off List
Tank rivets, $\frac{7}{16}$ -in. and smaller.....	70
Machine bolts .....	60
Carriage bolts .....	60
Lag screws .....	60
Hot-pressed nuts, square, blank or tapped....	60
Hot-pressed nuts, hexagons, blank or tapped....	60

for a pontoon for the Mississippi River Commission. A pending sewer project will require 600 tons of reinforcing bars.

**Old Material.**—Substantial tonnages of steel grades, miscellaneous rails and specialties were taken by some of the mills in the St. Louis district, and the buying movement is expected to continue, now that orders for car equipment have been placed with factors here. Dealers' stocks are said to be low. Railroad lists include: Baltimore & Ohio, 16,000 tons; Wabash, 1780 tons; Kansas City Southern, 200 tons; Ann Arbor, 130 tons; Frisco, 27 carloads, and Chicago & Eastern Illinois, 20 carloads.

*Prices per gross ton f.o.b. dealers' yards and delivered St. Louis district consumers' works:*

Heavy melting steel.....	\$12.75 to \$13.25
No. 1 locomotive tires.....	14.00 to 14.50
Heavy shoveling steel.....	12.75 to 13.25
Miscellaneous standard-section rails, including frogs, switches and guards, cut apart.....	14.50 to 15.00
Railroad springs .....	15.25 to 15.75
Bundled sheets .....	9.00 to 9.50
No. 2 railroad wrought.....	12.75 to 13.25
No. 1 bushing.....	11.00 to 11.50
Cast iron borings.....	10.00 to 10.50
Iron rails .....	13.50 to 14.00
Rails for rolling.....	15.50 to 16.00
Machine shop turnings.....	8.50 to 9.00
Steel car axles.....	20.00 to 20.50
Iron car axles.....	24.00 to 24.50
Wrought iron bars and transoms.....	21.00 to 21.50
No. 1 railroad wrought.....	11.50 to 12.00
Steel rails, less than 3 ft.....	16.00 to 16.50
Steel angle bars.....	14.00 to 14.50
Cast iron carwheels.....	14.25 to 14.75
No. 1 machinery cast.....	15.75 to 16.25
Railroad malleable .....	13.00 to 13.50
No. 1 railroad cast.....	14.00 to 14.50
Agricultural malleable .....	12.50 to 13.00
Relaying rails, 60 lb. and under....	20.50 to 23.50
Relaying rails, 70 lb. and over....	26.50 to 29.00

## Canada

### Canadian Steel Mills Start New Year with Good Backlogs

TORONTO, ONT., Jan. 10.—Although only a week has passed since the beginning of the year the general trend of business in iron and steel is steadily working up to the level at which it stood before the holiday season. Indications are that practically all lines of industrial enterprise will reach higher levels than in 1927. Canadian mills start the new year with unfilled orders greatly in excess of those they had at the beginning of 1927.

The Canadian Locomotive Co., Kingston, Ont., has received an order from the Alberta Government for four locomotives. Canadian mills are carrying on active campaigns for business in foreign markets. H. J. Kelly, general manager Dominion Iron & Steel Co., Sydney, N. S., announces that his company has received an order for 900 tons of steel rods for Japan. The Dominion Iron & Steel Co. started the year with 88,000 tons of orders on its books.

**Pig Iron.**—While the market has not yet fully recovered from the holiday recession, some improvement in sales of foundry and malleable iron is reported. Spot demand is limited and the majority of orders are for one or two car lots. About 50 per cent of the contract consumers have covered for first quarter.

*Prices per gross ton:*

	Delivered Toronto
No. 1 foundry, sil. 2.25 to 2.75.....	\$23.60
No. 2 foundry, sil. 1.75 to 2.25.....	23.60
Malleable .....	23.60
	Delivered Montreal
No. 1 foundry, sil. 2.25 to 2.75.....	25.00
No. 2 foundry, sil. 1.75 to 2.25.....	25.00
Malleable .....	25.00
Basic .....	24.00
	Imported Iron at Montreal Warehouse
Summerlee .....	33.50
Carron .....	33.00

**Old Material.**—Consumers are holding their purchases to a minimum. Foundries are stock taking and until this has been accomplished dealers do not expect a strong demand for scrap from this source. Some buying for first quarter delivery has been done, but the majority continue to "buy as you go." Prices are unsettled and until they reach a firmer level there is little prospect of any general strengthening in demand.

# Cincinnati

## Order Placed for 3700 Tons of Bars —Pig Iron Dull

CINCINNATI, Jan. 10.—With many consumers having covered their first quarter requirements, while others are waiting to determine better their needs before making future commitments, the pig iron market is dull, and dealers are of the opinion that sales this month will be small. Price considerations have been of minor importance, since quotations in the last three weeks have not been altered. An Ironton, Ohio, furnace has sold two lots of foundry iron totaling 700 tons, while the Norfolk & Western and the Worthington Pump & Machinery Corporation have closed for 600 and 300 tons, respectively. Southern Ohio makers continue to quote \$19, base furnace, and Lake Erie producers are asking \$16.50, base furnace. Southern iron is still on the basis of \$16, Birmingham, but sales have been inconsequential.

### Prices per gross ton, delivered Cincinnati:

So. Ohio fdy., sil. 1.75 to 2.25....	\$20.89
So. Ohio malleable.....	\$20.14 to 20.89
Alabama fdy., sil. 1.75 to 2.25....	19.69
Alabama fdy., sil. 2.25 to 2.75....	20.19
Tennessee fdy., sil. 1.75 to 2.25..	19.69
Southern Ohio silvery, 8 per cent	26.89

Freight rates, \$1.89 from Ironton and Jackson, Ohio; \$3.69 from Birmingham.

**Finished Material.**—In practically all consuming industries there is a feeling of optimism which has helped to give a somewhat better tone to the market, despite the absence of sizable bookings. Aside from 1300 tons for the local Eighth Street viaduct and 600 tons for the building of the Cincinnati Young Women's Christian Association, both of which will be supplied by the McClintic-Marshall Co., structural steel lettings have been of small proportions. Fabricating shops in this district are operating on a curtailed basis. Sales of bars, shapes and plates have been firmly maintained at 1.80c., base Pittsburgh. In the sheet market orders have fallen off, but producers have sufficient backlogs to justify present increased operating schedules. Black sheets are being quoted at 2.90c., base Pittsburgh. blue annealed at 2.10c. and galvanized at 3.75c., but transactions at those figures have been scarce. Considerable tonnage of nails was closed previous to the enforcement of the new card of extras, so that activities at the moment, as far as new business is concerned, are light. Common wire nails continue at \$2.50 per keg, base Ironton or Pittsburgh. Demand for cold-rolled bars has shown an improvement in the past week.

**Reinforcing Bars.**—The Jones & Laughlin Steel Corporation will supply about 3700 tons of new billet bars for the Eighth Street viaduct in this city, the largest award locally in over a year. For a municipal sewage disposal plant at Dayton, Ohio, the West Virginia Rail Co. will furnish about 1500 tons of rail steel bars. New billet bars are quoted at 1.80c., base Pittsburgh, and rail steel stock at 1.70c. to 1.75c., base mill.

**Warehouse Business.**—The first week of the year has brought little business to local warehouses, and jobbers do not anticipate a pickup in sales for another week. Prices are unchanged.

### Warehouse Prices, f.o.b. Cincinnati

	Base per Lb.
Plates and structural shapes....	3.40c.
Bars, soft steel or iron.....	3.30c.
Reinforcing bars .....	3.30c.
Hoops .....	4.00c. to 4.25c.
Bands .....	3.95c.
Cold-finished rounds and hexagons	3.85c.
Squares .....	4.35c.
Open-hearth spring steel.....	4.75c. to 5.00c.
Black sheets (No. 24).....	4.05c.
Galvanized sheets (No. 24).....	4.90c.
Blue annealed sheets (No. 10)...	3.60c.
Structural rivets .....	3.85c.
Small rivets .....	.65 per cent off list
No. 9 annealed wire, per 100 lb.....	\$3.00
Common wire nails, base per keg.....	2.95
Cement coated nails, base 100 lb. keg.....	2.95
Chain, per 100 lb.....	7.55
	Net per 100 Ft.
Lap-welded steel boiler tubes, 2-in.....	\$18.00
4-in.....	38.00
Seamless steel boiler tubes, 2-in.....	19.00
4-in.....	39.00

**Coke.**—Specifications and orders for by-product foundry coke have increased in the past week, much of the betterment in demand having come from automobile companies or allied industries. Cold weather also has had a stimulating effect on by-product domestic coke sales, which have been the best of the season. A large user of by-product foundry coke in Cleveland has contracted with the Ashland, Ky., maker for its coke requirements during the first half of 1928. Prices of New River and Wise County beehive coke are unchanged.

Foundry coke prices per net ton, delivered Cincinnati: By-product coke, \$9.52 to \$9.64; Wise County coke, \$7.59 to \$8.09; New River coke, \$10.09 to \$10.59. Freight rates: \$2.14 from Ashland, Ky.; \$2.59 from Wise County and New River ovens.

**Old Material.**—Dealers are reported to be paying slightly more for railroad scrap this month than in December. This action is supported by speculative possibilities rather than on developments indicating mill buying in the immediate future. The market has been almost devoid of transactions. The Chesapeake & Ohio will sell a small list this week.

### Dealers' buying prices per gross ton f.o.b. cars, Cincinnati:

Heavy melting steel.....	\$11.50 to \$12.00
Scrap rails for melting.....	11.75 to 12.25
Loose sheet clippings.....	8.75 to 9.25
Bundled sheets.....	9.50 to 10.00
Cast iron borings.....	8.50 to 9.00
Machine shop turnings.....	8.00 to 8.50
No. 1 busheling.....	10.50 to 11.00
No. 2 busheling.....	7.50 to 8.00
Rails for rolling.....	13.00 to 13.50
No. 1 locomotive tires.....	13.50 to 14.00
No. 1 railroad wrought.....	11.00 to 11.50
Short rails .....	17.00 to 17.50
Cast iron carwheels.....	12.75 to 13.25
No. 1 machinery cast.....	16.00 to 17.00
No. 1 railroad cast.....	13.50 to 14.00
Burnt cast .....	8.00 to 8.50
Stove plate .....	9.25 to 9.75
Brake shoes .....	10.00 to 10.75
Railroad malleable .....	12.50 to 13.00
Agricultural malleable .....	12.00 to 12.50

# Boston

## Pig Iron Sales at Low Point—Some Scrap Grades Weaken

BOSTON, Jan. 10.—Pig iron sales in New England in the past week did not exceed 1200 tons, the smallest amount for any similar period in months. There is no open inquiry of importance, and the largest single order placed was one of 150 tons of No. 2X. Four or five foundries are privately negotiating for several hundred tons, but the general outlook for the next month or two is not particularly encouraging unless there is a material increase in the New England melt. Efforts of furnaces east of Buffalo to lift prices have not been very successful, because one Buffalo company is still offering No. 2 plain and No. 2X iron at \$16.50 a ton, furnace, although not as actively as heretofore. Eastern

### Warehouse Prices, f.o.b. Boston

	Base per Lb.
Plates .....	3.365c.
Structural shapes—	
Angles and beams.....	3.365c.
Tees .....	3.365c.
Zees .....	3.465c.
Soft steel bars and small shapes.....	3.265c.
Flats, hot-rolled .....	4.15c.
Reinforcing bars .....	3.265c. to 3.54c.
Iron bars—	
Refined .....	3.265c.
Best refined .....	4.60c.
Norway, rounds .....	6.60c.
Norway, squares and flats.....	7.10c.
Spring steel—	
Open-hearth .....	5.00c. to 10.00c.
Crucible .....	12.00c.
Tire steel .....	4.50c. to 4.75c.
Bands .....	4.015c. to 5.00c.
Hoop steel .....	5.50c. to 6.00c.
Cold rolled steel—	
Rounds and hexagons.....	4.05c.
Squares and flats.....	4.55c.
Toe calk steel.....	6.00c.
Rivets, structural or boiler.....	4.50c.
	Per Cent Off List
Machine bolts .....	.50 and 5
Carriage bolts .....	.50 and 5
Lag screws .....	.50 and 5
Hot-pressed nuts .....	.50 and 5
Cold-punched nuts .....	.50 and 5
Stove bolts .....	.70 and 10



and western Pennsylvania, Virginia and Alabama iron are still bringing a premium over Buffalo and east of Buffalo iron, but sales have tapered off. Foreign iron is no longer an important factor in this market. Furnaces east of Buffalo therefore dominate New England.

*Prices of foundry iron per gross ton, delivered to most New England points:*

Buffalo, sil. 1.75 to 2.25.....	\$21.41 to \$21.91
Buffalo, sil. 2.25 to 2.75.....	21.91 to 22.41
East. Penn., sil. 1.75 to 2.25.....	22.65 to 23.15
East. Penn., sil. 2.25 to 2.75.....	23.15 to 23.65
Virginia, sil. 1.75 to 2.25.....	25.71
Virginia, sil. 2.25 to 2.75.....	26.21
Alabama, sil. 1.75 to 2.25.....	22.91 to 24.77
Alabama, sil. 2.25 to 2.75.....	23.41 to 25.27

Freight rates: \$4.91 from Buffalo, \$3.65 from eastern Pennsylvania, \$5.21 all rail from Virginia, \$6.91 to \$8.77 from Alabama.

**Coke.**—A large demand for domestic fuel, due to cold weather, reduced the New England Coal & Coke Co.'s and Providence Gas Co.'s reserve piles. Domestic coke is \$8.50 a ton at ovens. New England ovens report a small increase in the movement of foundry coke at \$11.50 a ton delivered within a \$3.10 freight rate zone.

**Importations.**—Importations of pig iron at this port in December were 643 tons of Dutch, which compares with 781 tons in November, 1927, and 1071 tons in December, 1926. Imports for 1927 aggregated 23,623 tons, contrasted with 57,534 tons in 1926 and 90,621 tons in 1925. Thus importations last year were 33,911 tons smaller than in 1926 and 66,998 tons smaller than in 1925.

Importations of ore by months last year were: January, 16,052 tons; February, 6600 tons; March, 13,527 tons; April, 13,125 tons; May, 13,650 tons; June, 8300 tons; July, 30,852 tons; August, 34,227 tons; September, 25,805 tons; October, 23,447 tons; November, none, and December, 8850 tons, a total of 194,435 tons. The slump in importations in the last two months of the year was due to the fact that the Mystic Iron Works bought Port Henry, N. Y., ore instead of foreign.

Importations of coal in December were 21,089 tons, as against 8713 in November, bringing the total for 1927 up to 66,374 tons. In addition to pig iron, ore and coal, 16,056 pieces of foreign pipe were received at Boston in 1927.

Following are the receipts of foreign pig iron at Boston by months during 1927, together with comparisons, figures in tons:

	1927	1926	1925
January .....		4,061	8,212
February .....	12,350	10,659	13,701
March .....		10,810	11,365
April .....	110	6,332	6,167
May .....	1,027	3,979	6,179
June .....	1,848	4,936	7,967
July .....	1,979	2,423	4,869
August .....	2,262	6,347	8,248
September .....	1,239	2,805	6,747
October .....	1,384	1,801	6,264
November .....	781	2,310	7,137
December .....	643	1,071	3,765
Totals .....	23,623	57,534	90,621

**Shapes and Plates.**—The Boston & Maine Railroad has announced a \$6,010,000 reconstruction program made necessary by the floods of last year. Included in this total is \$2,050,000 for 92 bridges, of which about a quarter will be permanent replacement structures. Owing to the open winter, fabricators are busier than usual at this time, but the major portion of their work involves small tonnages. Prices on plates and shapes remain firm at 1.80c. per lb., base Pittsburgh.

**Reinforcing Bars.**—Owing to the firm position taken by steel mills, the local market for reinforcing bars is stronger. The going price from stock is 2.75c. per lb. base, whereas it was 2.70c. a week ago.

**Pipe.**—Boston has yet to award approximately 2000 tons of pipe and fittings, bids for which were opened last month. Pawtucket, R. I., has awarded Allen & Reed, Inc., Providence, R. I., a contract for its new water system calling for approximately 700 tons of pipe. The contractor is still negotiating. Massachusetts opens bids Jan. 12 on about 400 tons of 6 to 12-in. pipe for a State hospital. Private water pipe business is good, with small lots of 4-in. pipe going at \$45.10 to \$46.10 a ton delivered to common Boston freight rate points, and 6 to 12-in. stock at \$41.10 to \$42.10. On large tonnages, however, foundries are cutting these

prices, especially when competing with Southern pipe makers, who are again active in New England. The Charles H. Tenny interests are reported to have bought 2000 tons of gas pipe.

**Cold Rolled Strip Steel.**—Makers of cold rolled strip steel report good bookings and anticipate a satisfactory volume of sales during the next three or four months.

*Mill Prices on Cold-Rolled Strip in North Atlantic States:* In 1 to 3-ton lots, 3.25c. per lb., base Pittsburgh, and also, 3.25c. to 3.40c. per lb., base Worcester, Mass.

**Old Material.**—Business is less active than it was a month ago. Most dealers are holding material for higher prices. In contrast with such expectations, the market for some grades is weaker. Strictly No. 1 heavy melting steel, which a week ago sold as high as \$9.50 a ton on cars, shipping point, today is mostly \$9, with an occasional sale at \$9.25. The withdrawal of a Portland, Me., rolling mill from the market has weakened prices for street car axles, while textile machinery cast is so plentiful the price has dropped about \$1 a ton to \$14 to \$14.50 a ton, delivered. Good breakable No. 1 machinery cast is bringing \$15 a ton, delivered, but ordinary grades generally go at \$14. A Buffalo consumer is bidding \$14.50 a ton, delivered, for railroad malleable, but that price is out of line with the New England delivered price of \$13 to \$13.50. Prices on pipe have an unusually wide spread. Some brokers are paying \$8 to \$8.50 a ton on cars, while the best others offer is \$7.50 to \$8. The latter price has predominated in recent transactions.

*Buying prices per gross ton f.o.b. Boston rate shipping points:*

No. 1 heavy melting steel.....	\$9.00 to \$9.25
Scrap rails .....	8.75 to 9.00
No. 1 railroad wrought.....	10.50 to 11.00
No. 1 yard wrought.....	8.50 to 9.00
Machine shop turnings.....	6.00 to 6.50
Cast iron borings (steel works and rolling mill).....	6.00 to 6.25
Bundled skeleton, long.....	5.60 to 6.00
Forge flashings .....	6.00 to 6.50
Blast furnace borings and turnings .....	6.00 to 6.25
Forge scrap .....	6.00 to 6.50
Shafting .....	13.00 to 13.50
Street car axles.....	15.50 to 16.00
Wrought pipe (1 in. in diameter, over 2 ft. long).....	7.50 to 8.00
Rails for rerolling.....	10.00 to 10.50
Cast iron borings, chemical.....	10.00 to 10.50

*Prices per gross ton delivered consumers' yards:*

Textile cast .....	\$14.00 to \$14.50
No. 1 machinery cast.....	14.00 to 15.00
No. 2 machinery cast.....	12.50 to 13.00
Stove plate .....	11.00 to 11.50
Railroad malleable .....	13.00 to 13.50

## Buffalo

### Increase in Steel Plant Operations—Pig Iron Steady

BUFFALO, Jan. 10.—Pig iron prices are holding at \$17 base for foundry and \$17.50 for malleable for this district. An inquiry for 4000 tons has been issued by the Baldwin Locomotive Works. A Toronto inquiry is for 1000 tons of foundry and malleable, and an inquiry from a northern New York consumer is for 500 tons of foundry. Another inquiry for 500 tons of foundry is also pending.

*Prices per gross ton, f.o.b. furnace:*

No. 2 plain fdy., sil. 1.75 to 2.25.....	\$17.00
No. 2X foundry, sil. 2.25 to 2.75.....	17.50
No. 1X foundry, sil. 2.75 to 3.25.....	18.50
Malleable, sil. up to 2.25.....	17.50
Basic .....	17.00
Lake Superior charcoal.....	27.28

**Finished Iron and Steel.**—A better tone is noticeable and there has been an increase in operations. On bars,

#### Warehouse Prices, f.o.b. Buffalo

	Base per Lb.
Plates and structural shapes.....	3.40c.
Soft steel bars.....	3.30c.
Reinforcing bars .....	2.75c.
Cold-finished flats, squares and hexagons.....	4.45c.
Rounds .....	3.95c.
Cold rolled strip steel.....	5.85c.
Black sheets (No. 24).....	4.30c.
Galvanized sheets (No. 24).....	5.15c.
Blue annealed sheets (No. 10).....	3.80c.
Common wire nails, base per keg.....	\$3.65
Black wire, base per 100 lb.....	3.90

shapes and plates 1.90c. is holding firmly and considerable business has been placed. Increase in automobile production accounts for some of this. Operations of sheet mills are now at about 80 per cent. It is reported that 1500 tons of reinforcing bars for the Hecker-Jones-Jewell mill and elevator has been placed. A new hospital at Marcy, N. Y., will require 300 tons of reinforcing bars and 560 tons of structural steel.

**Old Material.**—A mill which has been restricting scrap shipments is now accepting some tonnage. The market is particularly weak for stove plate, cast scrap and the various foundry grades. There has been an increase in open-hearth furnace operation, and dealers look for steel scrap purchasing before the end of the month. Railroad lists of the Erie and New York Central, which closed last week, brought fairly good prices. Some of the dealers, short on heavy melting steel, bought this grade, paying more for it than the price obtained by them as sellers.

Prices per gross ton, f.o.b. Buffalo consumers' plants:

Basic Open-Hearth Grades	
No. 1 heavy melting steel.....	\$14.50 to \$15.00
No. 2 heavy melting steel.....	13.75 to 14.25
Scrap rails.....	13.75 to 14.25
Hydraulic compressed sheets....	11.50 to 12.00
Hand bundled sheets.....	8.50 to 9.00
Drop forge flashings.....	11.50 to 12.00
No. 1 busheling.....	13.25 to 13.50
Heavy steel axle turnings.....	12.75 to 13.25
Machine shop turnings.....	9.00 to 9.25
Acid Open-Hearth Grades	
Railroad knuckles and couplers..	15.50 to 15.75
Railroad coil and leaf springs...	16.00 to 16.50
Rolled steel wheels.....	14.75 to 15.25
Low phosphorus billet and bloom ends .....	15.75 to 16.00
Electric Furnace Grades	
Heavy steel axle turnings.....	12.75 to 13.25
Short shoveling steel turnings...	10.75 to 11.00
Blast Furnace Grades	
Short shoveling steel turnings...	10.75 to 11.00
Short mixed borings and turnings	11.00 to 11.50
Cast iron borings.....	11.00 to 11.50
No. 2 busheling.....	9.00 to 9.50
Rolling Mill Grades	
Steel car axles.....	16.00 to 16.50
No. 1 railroad wrought.....	12.00 to 12.50
Cupola Grades	
No. 1 machinery cast.....	14.50 to 15.00
Stove plate.....	12.75 to 13.00
Locomotive grate bars.....	10.50 to 11.00
Steel rails, 3 ft. and under.....	16.00 to 16.50
Cast iron carwheels.....	14.00 to 14.50
Malleable Grades	
Railroad.....	15.00 to 15.50
Agricultural.....	15.00 to 15.50
Industrial.....	15.00 to 15.50

## Pacific Northwest

### Construction Activities Appear Promising for This Year

SEATTLE, Jan. 6 (*By Air Mail*).—The industrial outlook for the Pacific Northwest is regarded as encouraging. A large amount of State and county work, most of which will take more or less steel, is planned, while the local building outlook is quite promising, with work in prospect totaling about \$15,000,000. Pulp and paper mills to be built in Washington this year will take considerable steel, one job already placed calling for 1500 tons.

Although demand for steel during the last two or three months has been light, prices have held quite steadily, except for the recent revision to meet the method of quoting now practised by the Bethlehem Steel Co., which has brought plates and shapes down about \$2 a ton on a delivered basis.

**Pig Iron.**—Very little is doing in the local foundry trade, and only occasional small lots of pig iron are being sold. Utah basic and No. 2 foundry are quoted at \$24 to \$25 per gross ton, delivered Seattle.

#### Warehouse Prices, f.o.b. Seattle

	Base per Lb.
Plates and structural shapes.....	3.00c.
Soft steel bars.....	3.00c.
Reinforcing bars.....	2.90c.
Black sheets (No. 24).....	4.50c.
Galvanized sheets (No. 24).....	5.00c.
Blue annealed sheets (No. 10).....	3.75c.
Rivets, button and cone head.....	5.00c.
Rivets, tank.....	55-5 per cent off list
Common wire nails, base per keg.....	\$3.25
Cement coated nails, 100-lb. keg.....	3.25

**Plates.**—The local market is quiet and not much work is in sight. The water line for the new pulp mill at Port Townsend, Wash., will be two-thirds wood and one-third steel, the latter amounting to 700 tons; it was taken by the Bethlehem Steel Co. Tank plates are quoted at 2.25c. to 2.30c., Seattle.

**Structural Shapes.**—The largest job placed in the week was 2300 tons for two bridges for the Simpson Logging Co., one over Vance Creek and the other over the Skokomish River, both in Washington, and taken by the United States Steel Products Co. Work on which bids have gone in includes 1500 tons of shapes for the new pulp and paper mill of the Pacific Bag & Paper Co. at Tacoma, Wash., and the new Northern Life Building, 2200 tons. Plain material is 2.30c. to 2.35c., Seattle.

**Bars.**—Bids are expected to be asked in a week or so on about 2500 tons of reinforcing steel for the Bon Marche department store. Work pending includes about 1000 tons for the Weaver Street bridge in Seattle, 1000 tons for the Beacon Hill tunnel, Seattle, and about 700 tons for an addition to the Elks' Temple in Seattle. Reinforcing steel bars are 1.85c. to 2.25c., the price depending on the size and desirability of the order.

**Sheets.**—Prices are somewhat uneven, with No. 24 galvanized usually at 4.35c., No. 24 black at 3.50c. and blue annealed at 2.75c., all c.i.f. Seattle.

**Hoops and Bands.**—The local market is disturbed by foreign competition at prices much lower than those named by domestic mills. Domestic hoops and bands are quoted at 2.73c., Seattle.

**Warehouse Business.**—Local jobbers report trade as only fair, but are looking for early betterment following the inventory period, when stocks carried by consumers will have to be replenished.

**Old Material.**—The local scrap market is practically stagnant. The Pacific Coast Steel Co., the leading local consumer, is said to be covered for three months or longer. In the absence of sales nominal prices are as follows: Heavy melting steel, \$9.50 to \$10, and cast iron scrap, \$12.50 to \$13, delivered, Seattle.

### Detroit Scrap Prices Higher; Pig Iron Shipments Larger

DETROIT, Jan. 10.—Increased buying, while not in large tonnages, has given the scrap market in this district added strength with the result that most grades registered an increase of 25c. a ton.

Automobile production is on a higher basis and pig iron shipments in the district for the month will be larger than any month since July.

Dealers' buying prices per gross ton, f.o.b. cars, Detroit:

Heavy melting and shoveling steel .....	\$12.00 to \$12.50
Borings and short turnings.....	9.00 to 9.50
Long turnings.....	7.75 to 8.25
No. 1 machinery cast.....	16.00 to 17.00
Automobile cast.....	18.00 to 19.00
Hydraulic compressed sheets....	10.75 to 11.25
Stove plate.....	11.50 to 12.50
No. 1 busheling.....	9.50 to 10.00
Sheet clippings.....	7.50 to 8.00
Flashings.....	10.00 to 10.50

### Navy Asks for Bids on Steel

WASHINGTON, Jan. 10.—The Bureau of Supplies and Accounts, Navy Department, has asked for bids, to be opened on Jan. 17, for 2317 tons of special treatment steel plates; 300 tons of steel shapes and 56 tons of steel flats. The plates are for use in modernizing the battleships Oklahoma and Nevada and are to be delivered to the Philadelphia and Norfolk, Va., navy yards. The shapes and flats are to be used in the construction of light cruisers Nos. 28 and 29, building at Mare Island, Cal., and Puget Sound, Wash., navy yards, where the steel is to be delivered by the bidders.

Of 2700 employees of the Commonwealth Steel Co., Granite City, Ill., 1076 have a service record with that company of from five to 25 years.



## Declares Freight Rates on Crop Ends Should Be Same as for Billets

WASHINGTON, Jan. 10.—Rates on standard and less than standard lengths of square round-cornered iron and steel billets, in mixed carloads, shipped in Official Classification territory, are unduly prejudicial to the extent that they exceed the applicable commodity rates on billets weighing 150 lb. and over in carloads, according to a proposed report to the Interstate Commerce Commission by George M. Curtis, attorney-examiner. The report followed a complaint by the Carnegie Steel Co., the Illinois Steel Co. and the Interstate Iron & Steel Co., while the Donner Steel Co. and the Central Alloy Steel Corporation intervened on the side of the other producers. The question at issue related to what constituted crop ends within the meaning of the description of them in applicable commodity tariffs. The railroads, since Jan. 1, 1927, have charged the regular commodity billet rates on standard length and the fourth class less-than-carload rate on shipments of less than standard-length billets when shipped in mixed carloads, assessing the same rate for the crop ends as for iron and steel bars.

The steel companies contended that the shorter lengths are crop ends under the commodity tariff description. The railroads maintained that they are not crop ends unless the end or fishtail be left attached as a part of the short length containing usable sound billet material. The attorney-examiner said that it is apparent that the weight of the fishtail, "which is mere scrap, is relatively small as compared with the shorter lengths in the cutting of the standard billets of dimensions that will permit the forgers to separate them into usable multiple lengths. There appears to be no sound reason for shipping the usual imperfect ends as a part of the shorter lengths." The railroads also had contended that the short-length pieces of billets are not readily distinguishable in the car from iron and steel bars. The examiner declared that the complainants and interveners, in good faith, shipped the shorter lengths of billets as crop ends under their interpretation of what constituted crop ends under the provisions of the tariffs that permitted the shipment of imperfect ends with billets at billet rates and which did not specifically state that a crop end must be in whole or in part of imperfect metal.

## Black & Decker Mfg. Co. Acquires Van Dorn Electric Tool Co.

The Van Dorn Electric Tool Co., Cleveland, manufacturer of portable electric tools, has been acquired by the Black & Decker Mfg. Co. of Towson, Md. Assets of the two companies are placed at \$6,000,000. The Black & Decker company has specialized in the manufacture of portable electric drills and other associated tools, and has been closely connected with the automotive trade, while the Van Dorn Electric Tool Co. has built a line of electric drills, electric reamers and other similar tools to meet the demands of large industrial enterprises such as automobile factories, shipyards, locomotive shops, car shops, etc.

S. Duncan Black, president Black & Decker Mfg. Co., announces that there will be no changes in personnel or general activities of the two organizations. Included in the purchase of the Van Dorn Electric Tool Co. are the factories, complete tool equipment, inventories, land and all assets as of the date of purchase. Van Dorn electric tools of the same styles and designs will continue to be manufactured at the Cleveland plant, having the same Van Dorn identity as heretofore, and will be marketed through the existing Van Dorn sales organization and distributors. Likewise there will be no changes in the Black & Decker line of products or sales and distributing organization and each company will continue its activities as in the past.

Franklin Schneider will continue as president of the Van Dorn Electric Tool Co., and F. H. Zulauf will be vice-president and general sales manager. Lyman Bellows is sales promotion manager.

The Black & Decker Mfg. Co., whose production plants and administrative offices are at Towson, Md.,

have branches in 17 cities in the United States and Canada, a warehousing and distributing plant on the Pacific Coast, a manufacturing plant in Canada and a subsidiary, Black & Decker, Ltd., of Slough, Bucks, England. R. W. Procter is sales manager of the Black & Decker company, and W. C. Allen is sales supervisor.

## 54,000 Tons of Cast Iron Segments Ordered for Tunnel

The Mason & Hanger Co., New York contractor, which will build the Fulton Street tunnel as a part of New York's subway system, has contracted with the Bethlehem Steel Co. and the Davies & Thomas Co., the latter of Catasauqua, Pa., for 54,000 tons of cast iron segments, the order being divided equally. The contractor has also awarded to the American Bridge Co. an order for tunnel shields, amounting to about 9000 tons of fabricated plates and shapes, while 2000 tons of special bolts will be furnished by the Oliver Iron & Steel Co., Pittsburgh. Deliveries will extend over a long period as the contracting company has four and a half years in which to complete the tunnel.

## C. M. Schwab Honored by Arbitration Association

Charles M. Schwab was the guest of honor at a luncheon of the American Arbitration Association at Hotel Astor, New York, Jan. 5. When a movement to promote arbitration of business disputes was launched six years ago, Mr. Schwab gave it support, although other leading business men regarded the idea as visionary. For the initial printing expenses of the association Mr. Schwab contributed \$500, and a year later he gave \$5,000. Since that time he has continued to give his financial support and personal influence to promote the cause of arbitration.

"I have all respect for the courts," said Mr. Schwab in addressing the gathering, which included 500 members and guests of the association, "but I feel that it takes a real business man to decide a real business dispute. I would choose some one who knew something about the business to settle a controversy, not some one who needed to be educated to know something about that business."

In commenting on the essential honesty of most business men, Mr. Schwab said: "The American business man is honest, upright and square-dealing, and I have every confidence in him and in the prosperity and peace of our country. After 50 active years in business, I have not been soured by my experiences."

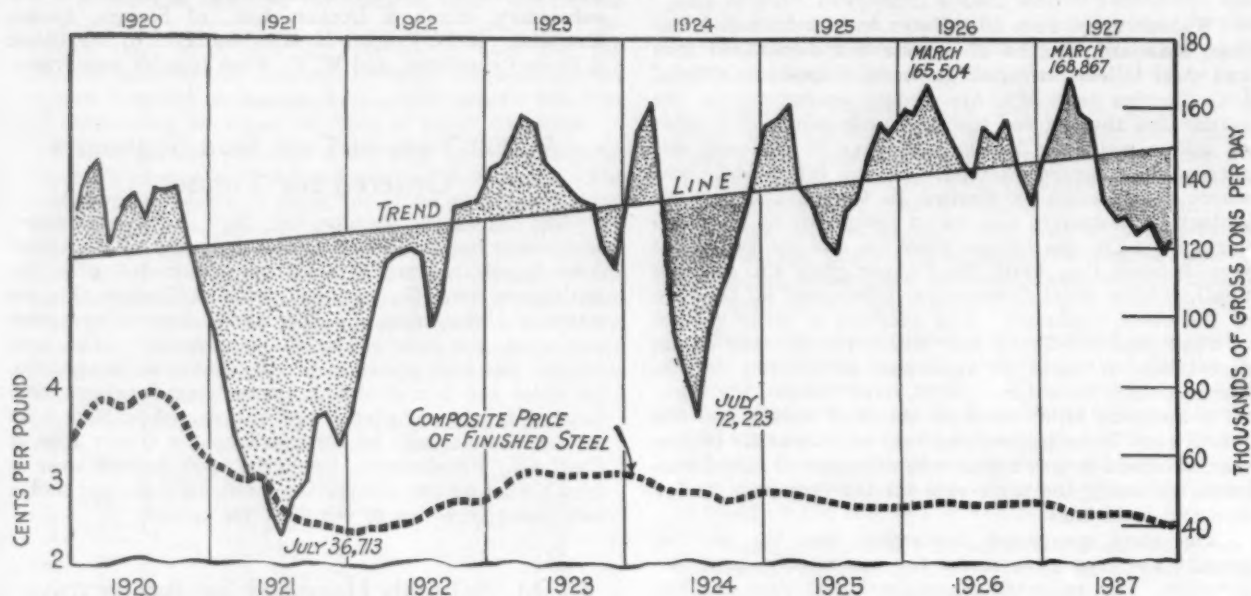
He said that he learned from Andrew Carnegie to approach life in a happy frame of mind and to seek the friendship of his fellow men. He recounted how Mr. Carnegie had received a letter from a director of his company complaining that the directors were not serious enough at board meetings. By way of reply, Mr. Carnegie, who was in Florence, Italy, at the time, sent a picture of a laughing monk to be hung in the board room. The accompanying advice was that whenever the directors felt serious-minded they should look at the picture and remember that the monk, possessing no worldly goods beyond his robe, could still laugh at life.

Mr. Schwab believes in arbitration of labor disputes, but said that in his company it had never been necessary to arbitrate, although there are provisions for doing so under the employee representation plan. In expressing his feeling of fellowship toward his workmen, he said: "The aristocracy of today is not one of birth or wealth, but is made up of those who do things for the welfare of their fellow men."

As a concluding ceremony of the luncheon, Felix M. Warburg, chairman of the board of directors of the society, presented a Commercial Peace medal to Mr. Schwab.

Production of bituminous coal in the United States in 1927 was more than 1 per cent above the average production of the five preceding years, as shown by the Bureau of Mines.

Production of Steel Ingots in December Showed Another Gain, the Third in the Second Half of 1927. It Still remains far below the line representing the calculated trend of consumption



## Another Increase in Ingot Production

Daily Rate of 121,167 Tons Was 1.6 Per Cent Above November  
—Calendar Year, 7.7 Per Cent Under Last Year

PRODUCTION of steel ingots in the United States in December is calculated by the American Iron and Steel Institute at 3,150,345 gross tons. This is based on returns from companies which in 1926 produced 95.40 per cent of the total tonnage. With 26 working days, the December production was 121,167 tons a day. This compares with 119,299 tons in November and 126,500 tons in October, and with 133,337 tons a year ago. December was the third month in the second half of 1927 to show a gain, while the trend was steadily downward. August was 1 per cent above the daily rate of July and October was nearly 2 per cent above September. Thus the last six months showed alternate losses and gains.

For the calendar year, the calculated output is given by the institute at 43,040,916 gross tons, or an average of 138,395 tons a day. This represents a decline of 8.3 per cent below the calculated figures for 1926, which

stood at 46,936,205 tons, or an average of 150,920 tons a day. This drop is reduced to 7.7 per cent when allowance is made for the electric and crucible ingot tonnage, which no longer is reported by the institute, but which was reported in 1926.

Bessemer steel showed a decline of 10.5 per cent from 1926; open-hearth steel, of 7 per cent.

Estimating production in December of electric and crucible steel ingots at 700 tons a day, the December total ingot output would appear to be about 122,000 tons a day. This is nearly 9 per cent under the figure for December, 1926. Details of the past two years are shown in the table.

### 1927 Production of an American Tin Plate Plant in India

The Tin Plate Co. of India, Ltd., Golmuri works, Jamshedpur, India, made 925,000 boxes of sheared and acceptable black plate in the year 1927. This production was made with less than 1.5 Europeans per hot mill per shift, and the plant was shut down one week in the middle of the summer for a general overhauling. The above production was therefore made in 51 weeks. The plant consists of six double mills with mechanical doublers, as described in THE IRON AGE of Oct. 30 and Nov. 6, 1924, in extracts from a paper on "An American Tin Plate Plant in India," read by Frank L. Estep, New York, before the American Iron and Steel Institute.

### Decline in Industrial Coal Stocks

Bituminous coal stocks in industrial hands are estimated by the National Association of Purchasing Agents to have decreased about 3,400,000 tons between Nov. 1 and Dec. 1, to a total of 55,225,000 tons, which is the lowest for any recent month. Industrial consumption during November is estimated at 35,514,000 tons, or about 1 per cent less than in October. Production of November is given at 47,100,000 tons. It is estimated that the steel mills have on hand a supply for about 55 days, the by-product coke plants and the railroads for about 41 days, electric utilities and coal-gas plants for 69 days and other industries for 47 days.

#### Production of Steel Ingots

Months 1927	(Gross Tons)		Calculated Monthly Production All Companies	Approximate Daily Production All Companies
	Reported by Companies Which Made 95.40 Per Cent of the Steel Ingots in 1926	Open- Hearth		
Jan. ....	3,041,233	545,690	3,759,877*	144,611*
Feb. ....	3,042,232	565,201	3,781,376*	157,557*
March ...	3,701,418	590,716	4,499,092*	166,633*
April ...	3,340,852	565,634	4,094,849*	157,494*
May ....	3,272,810	557,683	4,015,192*	154,430*
June ....	2,822,477	486,047	3,468,055*	133,387*
July ....	2,595,692	436,446	3,178,342*	127,134*
Aug. ....	2,805,657	505,584	3,470,903*	128,552*
Sept. ....	2,611,976	471,455	3,232,108*	124,312*
Oct. ....	2,641,920	495,798	3,289,013*	126,500*
Nov. ....	2,477,253	481,830	3,101,764*	119,299*
Dec. ....	2,557,130	448,299	3,150,345*	121,167*
Total..	34,910,650	6,150,383	43,040,916*	138,395*

\*Excluding crucible and electric steel ingots.  
1926

Jan. ....	3,326,846	581,683	4,132,210	158,931
Feb. ....	3,023,829	556,031	3,785,051	157,710
March ...	3,590,791	635,680	4,468,617	165,504
April ...	3,282,435	601,037	4,105,799	157,915
May ....	3,201,230	516,676	3,927,979	151,076
June ....	3,036,162	498,764	3,734,153	143,621
July ....	2,911,375	526,500	3,634,993	139,807
Aug. ....	3,145,055	627,273	3,986,966	153,345
Sept. ....	3,089,240	612,588	3,913,383	150,515
Oct. ....	3,224,584	630,526	4,074,544	156,713
Nov. ....	2,915,558	592,239	3,705,744	142,529
Dec. ....	2,788,479	493,172	3,466,766	133,337
Total..	37,535,584	6,872,169	46,936,205	150,920



## DECEMBER PIG IRON DATA

### Steel-Making Iron Made Last Month—Manganese Alloy Output Expanded—Capacity Active on Jan. 1

BELOW are additions to pig iron data for December, published in THE IRON AGE Jan. 5. The amount of steel-making pig iron made last month was 1,987,652 gross tons, or 64,818 tons per day. This compares with 1,938,043 tons, or 64,600 tons per day, made in November. The total steel-making pig iron produced in 1927 was 27,345,888 tons, which is 2,725,256 tons, or about 9 per cent, less than the 30,071,144 tons made in 1926. Details are given in one of the tables.

#### Capacity Active on Jan. 1

Later returns show that one more furnace went out of blast in December—the Utah furnace of the Columbia Steel Corporation—bringing the number active on Jan. 1, 1928, to 169. It is estimated that the capacity of these 169 furnaces was 86,835 tons per day, as compared with 87,700 tons per day for the 170 furnaces active on Dec. 1, 1927.

#### Larger Ferromanganese Output

More ferromanganese was made in December than in any month since August. The total was 20,992 tons, bringing the 1927 production to 291,840 tons. This compares with 315,828 tons made in 1926. The December speiseleisen output was also the largest since August at 6816 tons. The 1927 total was 99,368 tons, which exceeds the 1926 production of 74,096 tons by over 32 per cent.

#### Production of Steel Companies for Own Use—Gross Tons

	Total Iron Spiegel and Ferro		Spiegeleisen and Ferromanganese*			
	1926	1927	1926	1927	1926	1927
Jan. ...	2,599,876	2,343,881	29,129	7,746	31,844	7,486
Feb. ...	2,272,150	2,256,651	22,309	7,084	24,560	7,045
Mar. ...	2,661,092	2,675,417	24,064	7,339	27,834	7,650
Apr. ...	2,677,094	2,637,919	24,134	7,051	24,735	12,907
May ...	2,687,138	2,619,078	23,159	6,999	28,734	9,788
June ...	2,465,583	2,343,409	25,378	5,864	29,232	10,535
½ year...	15,362,933	14,876,355	148,173	42,083	166,939	55,411
July ...	2,461,161	2,163,101	26,877	3,699	26,394	9,350
Aug. ...	2,424,687	2,213,815	23,557	4,372	21,279	9,104
Sept. ...	2,436,733	2,090,200	25,218	2,925	20,675	6,037
Oct. ...	2,578,830	2,076,722	28,473	6,295	17,710	6,129
Nov. ...	2,484,620	1,938,043	31,903	7,565	17,851	6,521
Dec. ...	2,322,180	1,987,652	31,627	7,157	20,992	6,816
Year...	30,071,144	27,345,888	315,828	74,096	291,840	99,368

\*Includes output of merchant furnaces.

#### Coke Furnaces in Blast

Furnaces	Jan. 1		Dec. 1	
	Number in Blast	Capacity per Day	Number in Blast	Capacity per Day
New York:				
Buffalo .....	12	5,060	14	6,250
Other N. Y. and Mass.	2	800	2	835
New Jersey.....	0	....	0	....
Pennsylvania:				
Lehigh Valley.....	4	2,110	4	2,070
Spiegeleisen .....	1	220	1	200
Schuylkill Valley....	4	1,425	4	1,475
Susquehanna Valley..	2	960	2	940
Ferromanganese ..	1	65	1	65
Lebanon Valley ....	0	....	0	....
Ferromanganese ..	0	....	0	....
Pittsburgh District..	27	16,565	27	16,500
Ferro. and Spiegel	2	330	2	335
Shenango Valley....	5	2,250	4	1,830
Western Pennsylvania	5	2,815	6	2,860
Ferromanganese ..	2	280	1	195
Maryland .....	5	2,360	5	2,310
Wheeling District....	6	3,690	6	3,660
Ohio:				
Mahoning Valley....	12	7,200	12	7,450
Central and Northern	17	9,800	17	10,210
Southern .....	4	1,065	4	1,100
Illinois and Indiana...	27	17,350	27	17,170
Mich., Wis. and Minn..	7	3,040	7	2,850
Colo., Mo. and Utah...	3	1,300	3	1,290
The South:				
Virginia .....	1	220	1	235
Ferromanganese ..	0	....	0	....
Kentucky .....	1	370	1	360
Alabama .....	18	7,360	18	7,310
Ferromanganese ..	0	....	0	....
Tennessee .....	1	200	1	200
Total .....	169	86,835	170	87,700

#### Daily Average Production of Coke Pig Iron in the United States by Months Since Jan. 1, 1923—Gross Tons

	1923	1924	1925	1926	1927
Jan. ....	104,181	97,384	108,720	106,974	100,123
Feb. ....	106,935	106,026	114,791	104,408	105,024
Mar. ....	113,673	111,809	114,975	111,032	112,366
Apr. ....	118,324	107,781	108,632	115,004	114,074
May ....	124,764	84,358	94,542	112,304	109,385
June ....	122,548	67,541	89,115	107,844	102,988
½ year...	115,147	95,794	105,039	109,660	107,351
July ....	118,656	57,577	85,936	103,978	95,199
Aug. ....	111,274	60,875	87,241	103,241	95,073
Sept. ....	104,184	68,442	90,873	104,543	92,498
Oct. ....	101,586	79,907	97,528	107,553	89,810
Nov. ....	96,476	83,656	100,767	107,890	88,279
Dec. ....	94,225	95,539	104,853	99,712	86,960
Year ....	109,713	85,075	99,735	107,043	99,266

#### Daily Rate of Pig Iron Production by Months—Gross Tons

	Steel Works	Merchants*	Total
November, 1926.....	82,820	25,070	107,890
December .....	74,909	24,803	99,712
January, 1927 .....	75,609	24,514	100,123
February .....	80,595	24,429	105,024
March .....	86,304	26,062	112,366
April .....	87,930	26,144	114,074
May .....	84,486	24,899	109,385
June .....	78,110	24,878	102,988
July .....	69,778	25,421	95,199
August .....	71,413	23,660	95,073
September .....	69,673	22,825	92,498
October .....	66,991	22,819	89,810
November .....	64,600	23,679	88,279
December .....	64,818	22,142	86,960

\*Includes pig iron made for the market by steel companies.

## Shifting Currents in Pig Iron Imports

Imports of pig iron in November, at 16,142 tons, showed a decline of less than 9 per cent from November, 1926, in spite of the fact that imports for the 11 months ended Nov. 30 were less than 28 per cent of the corresponding total in 1926. November imports in 1927 were about one-seventh of the total for the first 11 months, whereas in 1926 the November tonnage was only one-twenty-fifth that of the 11 months.

India furnished more than half the total incoming tonnage in November, contrasted with only one-ninth of the total last year. In November, 1926, Germany furnished more than half of the total, contrasted with only a little over 2 per cent a year later. As a matter of fact, Germany's pig iron shipments reaching the United States in November, 1926, came within 10 tons of the total from Germany reaching the United States in the first 11 months of 1927.

In the 11 months India has furnished us with just under half our total imports. Netherlands has supplied almost half the remainder and Great Britain more than half that not furnished by India and Netherlands. In contrast with this, Germany led in 1926 with more than one-third the total for the first 11 months. Great

Britain was second, India third, and Netherlands fourth.

#### Imports of Pig Iron by Countries of Origin (Gross Tons)

	Nov., 1927	Nov., 1926	11 Months Ended November	
			1927	1926
India .....	9,245	1,879	58,583	83,108
United Kingdom ...	3,173	4	18,388	92,043
Germany .....	340	9,701	9,711	146,876
France .....	....	1,116	3,000	28,449
Netherlands .....	2,882	2,955	25,929	65,355
Sweden .....	502	25	1,673	2,950
Canada .....	....	530	689	4,719
Belgium .....	....	1,350	699	7,488
All other .....	....	....	97	2
Total .....	16,142	17,560	118,769	430,990

Shipments of electric industrial trucks and tractors in December are reported by the Department of Commerce at 96, compared with 98 in November and with 118 a year earlier. Totals for the two years were 1259 in 1927 and 1415 in 1926, showing a decline of 11 per cent. There was a drop of 188, or 14½ per cent, in domestic shipments, but a gain of 32, or 32½ per cent, in exports, which advanced from 98 to 130 units.

## FABRICATED STRUCTURAL STEEL

### Year's Business Opens With 44,500 Tons of Awards and 45,500 Tons of New Projects

Business for the year has begun with a good tonnage of both awards and new projects. A total of 44,500 tons is reported closed in the past week and new projects call for about 45,500 tons. One of the largest contracts placed was 9000 tons for the Fulton Street tunnel in New York. Among the larger inquiries is 7800 tons for a subway section in the Bronx, New York, and 8000 tons for a building in Chicago. Awards follow:

THOMASTON, ME., 150 tons, Lawrence Cement Co. plant unit, to New England Structural Co.

LAWRENCE, MASS., 400 tons, two Boston & Main Railroad bridges, to Boston Bridge Works, Inc.

SOMERVILLE, MASS., 400 tons, high school addition, to Boston Structural Steel Co., Inc.

CAMBRIDGE, MASS., 100 tons, garage for Windshield Co., to New England Structural Co.

BOSTON, 500 tons, North Station, to American Bridge Works.

STATE OF VERMONT, 300 tons, three State bridges, to Standard Engineering & Construction Co., Toledo.

NEW YORK, 19,270 tons reported to the Structural Steel Board of Trade; 11,920 tons in the following awards not previously reported: Apartment buildings at 118 East Fortieth Street, at Fifty-fifth Street and First Avenue and at 440 West Thirty-fourth Street, to Paterson Bridge Co.; West Thirty-sixth Street station of New York Edison Co., to Levering & Garrigues Co.; Neurological Institute on Fort Washington Avenue and school on Reservoir Avenue, to Hedden Iron Construction Co.; babies' hospital at Broadway and 168th Street, to A. E. Norton, Inc.; apartment buildings at 141 West Seventy-ninth Street, 136 East Seventy-ninth Street, 1070 Park Avenue, 3 East Eighty-fourth Street, 323 East Forty-third Street and on Montgomery Place in Brooklyn, business building at 142 West Fifteenth Street, garage at 2236 Nostrand Avenue in Brooklyn and building at Greenspoint Avenue and Queens Boulevard, to Harris Structural Steel Co.; boiler house for Brooklyn Edison Co. on Hudson Avenue, Brooklyn, factory building in Columbia Heights, Brooklyn, high school at Oyster Bay, L. I., ice storage building at 512 West Nineteenth Street and school at Forest Hills, L. I., to McClintic-Marshall Co.; Masonic Temple at Forest Hills, laundry building on Seventh Avenue, Brooklyn, and theater at 243 West Forty-seventh Street, to George A. Just Co.

NEW YORK, 9000 tons, Fulton Street tunnel, reported let to American Bridge Co.

NEW YORK, 2500 tons, commerce building for College of the City of New York, to an unnamed fabricator.

PERTH AMBOY, N. J., 150 tons, factory building, to Belmont Iron Works.

PHILADELPHIA, 500 tons, building for Broad Street Trust Co., to Montgomery Iron & Steel Co.; reported last week to an unnamed fabricator.

DOVER, N. J., 110 tons, viaduct for State Highway Commission, to Fort Pitt Bridge Works.

STATE OF NEW JERSEY, 115 tons, highway bridges, to Bethlehem Steel Co.

PHILADELPHIA, 100 tons, building for Quaker City Iron Works, to Belmont Iron Works.

HARRISBURG, PA., 1750 tons, North office building, to Lehigh Structural Steel Co.

CHICAGO, 1800 tons, addition to Illinois Bell Telephone Co. building, to Hansel Elcock Co.

STATE OF VERMONT, 350 tons, two highway bridges, to Shoemaker Bridge Co.

SOUTHERN RAILWAY, 100 tons, bridges, to Virginia Bridge & Iron Co.

HOPEWELL, VA., 300 tons, building for Atmospheric Nitrogen Co., to Virginia Bridge & Iron Co.

NAZARETH, PA., 180 tons, pack house for Nazareth Cement Co., to Bethlehem Construction Co.

STATE OF TEXAS, 1000 tons, tanks for Standard Oil Co. of New Jersey, to an unnamed fabricator.

MEMPHIS, TENN., 300 tons, pontoons for Mississippi River Commission, to Mississippi Valley Structural Steel Co.

CINCINNATI, 1300 tons, Eighth Street viaduct, to McClintic-Marshall Co.

CINCINNATI, 600 tons, building for Young Women's Christian Association, to McClintic-Marshall Co.

CLEVELAND, 230 tons, garage for Cleveland Railway Co., to Austin Co.

POMEROY, OHIO, 1000 tons, bridge over Ohio River, to Mount Vernon Bridge Co., Mount Vernon, Ohio.

DULUTH, MINN., 700 tons, additions and improvements for Zenith Furnace Co., to Lackawanna Structural Steel Co., Buffalo.

ST. PAUL, MINN., 1000 tons, Cedar Avenue bridge, to Crown Iron Works, local.

CHICAGO, ROCK ISLAND & PACIFIC, 500 tons, two bridges, to American Bridge Company.

LACROSSE, WIS., 400 tons, Hunter's bridge over Black River, to George E. Palmer Co., Minneapolis.

SEATTLE, 2100 tons, two bridges over Vance Creek and Snohomish River for Simpson Logging Co., to United States Steel Products Co.

PORT TOWNSEND, WASH., 2800 tons of steel plates for city water line, to Steel Tank & Pipe Co.

FOSS, ORE., 350 tons, railroad logging bridge for Hammond Lumber Co., to Wallace Bridge & Structural Steel Co.

SAN FRANCISCO, 175 tons plates, pontoon pipe for United States Engineer Office, to Pacific Coast Engineering Co.

SAN FRANCISCO, 125 tons, apartment building, Hermann and Buchanan Streets, to Golden Gate Iron Works.

SAN FRANCISCO, 130 tons, apartment building, California and Broderick Streets, to Central Iron Works.

SAN FRANCISCO, 118 tons, apartment building, Pine and Hyde Streets, to Central Iron Works.

LOS ANGELES, 150 tons, Shaber Cafeteria building, 618 South Broadway, to Union Iron Works.

LONG BEACH, CAL., 1100 tons, apartment building, Ocean Boulevard, to McClintic-Marshall Co.

BAKERSFIELD, CAL., 200 tons, hangars for Kern County, to Western Pipe & Steel Co.

### Structural Projects Pending

Inquiries for fabricated steel work include the following:

WHITE RIVER JUNCTION, VT., 1700 tons, bridge.

CAMBRIDGE, MASS., 175 tons, Third Street bridge.

FITCHBURG, MASS., 200 tons, theater and stores.

STAMFORD, CONN., 125 tons, service station.

SCARSDALE, N. Y., 225 tons, school.

NEW YORK, 7800 tons, section 1, route 106, subway in Bronx; bids close Jan. 27.

NEW YORK, 1400 tons, office building at Broadway and Fourteenth Street.

NEW YORK, 1000 tons, theater at Third Avenue and Fifty-eighth Street.

NEW YORK, 725 tons, business building at Third Avenue and 189th Street.

NEW YORK, 350 tons, loft building at 427 West Fifty-fourth Street.

NEW YORK, 200 tons, office building at Sedgwick Avenue and 167th Street.

NEW YORK, 100 tons, bank building at Ninth Street and Sixth Avenue.

EAST ORANGE, N. J., 1000 tons, apartment building.

PHILADELPHIA, 500 tons, Northeast Title & Trust Co. building.

NEW YORK CENTRAL RAILROAD, 2000 tons, bridge at South Bend, Ind.

ROCHESTER, N. Y., 700 tons, high school.

DETROIT, 4000 tons, Detroit-Windsor tunnel.

MARCY, N. Y., 560 tons, United States hospital; Felton Construction Co. low bidder.

MARINETTE, WIS., 500 tons, Chandler-Ogden bridge connecting with Menominee, Mich.; Klug & Smith Co., Milwaukee, engineer.

CHICAGO, 3000 tons, Willoughby Building, Madison Street and Michigan Avenue.

CHICAGO, 1800 tons, addition to Illinois Bell Telephone Co. building.

CHICAGO, 3000 tons, addition to Drake Hotel.

CHICAGO, 8000 tons, Forman Building; Graham, Anderson, Probst & White, architects.

ST. LOUIS, 500 tons, Arsenal Street viaduct.

CHAPPELL, TEX., 500 tons, highway bridge.

QUANAH, TEX., 500 tons, power house for Lake Paulina Power Co.

STEGE, CAL., 110 tons, plant for Western Industries Co.; bids opened.

SEATTLE, 2200 tons, Northern Life Insurance Building; bids opened.

TACOMA, WASH., 500 tons, plant for Union Bag & Paper Co.; bids being received.

TACOMA, 1500 tons, for Pacific Bag & Paper Co.

ELLENSBURG, WASH., 155 tons, Kittitas Main Canal, United States Bureau Reclamation; bids Feb. 10.

PORT TOWNSEND, WASH., 400 tons plates, additional, for pipe line.



## NON-FERROUS METAL MARKETS

The Week's Prices		Jan. 10	Jan. 9	Jan. 7	Jan. 6	Jan. 5	Jan. 4
Cents per Pound for Early Delivery	Lake copper, delivered.....	14.25	14.25	14.25	14.25	14.25	14.25
	Electrolytic copper, N. Y.*..	13.87 1/2	13.87 1/2	13.87 1/2	13.87 1/2	13.87 1/2	13.87 1/2
	Straits tin, spot, N. Y. ....	56.12 1/2	56.75	...	56.50	56.62 1/2	57.37 1/2
	Lead, New York.....	6.50	6.50	6.50	6.50	6.50	6.50
	Lead, St. Louis.....	6.30	6.30	6.30	6.30	6.30	6.30
	Zinc, New York.....	6.00	6.02 1/2	6.00	6.00	6.00	6.00
	Zinc, St. Louis.....	5.65	5.67 1/2	5.65	5.65	5.65	5.65

\*Refinery quotation; delivered price 1/4 c. higher.

NEW YORK, Jan. 10.—Thus far this year the markets have been generally quiet but firm. A spurt of buying appeared in copper last week, but the market has turned quiet again, with prices steady. Tin quotations are lower, with buying fairly good. The lead market is quiet and unchanged. Demand for zinc is very light, but prices remain steady.

**Copper.**—Late last week a fair demand for electrolytic copper sprang up, particularly from abroad, and as a result the market was firmly established on a basis of 14.12 1/2 c., delivered in the Connecticut Valley. Practically no metal is available below this level. Domestic demand was better last week, but thus far this week inquiry and buying have been light and the market is very quiet. The quotation for Copper Exporters, Inc., is unchanged at 13.50 c., c.i.f., usual European ports. Lake copper is quiet but firm at 14.25 c., delivered.

**Tin.**—Sales for the week ended Saturday, Jan. 7, were fairly good, amounting to about 1100 tons. Friday was probably the best day at 350 tons, with 150 tons sold on Saturday. Purchases were confined largely to two or three consumers. Fair buying by one consumer on Thursday, Jan. 5, was followed by purchases from another on Friday and Saturday. Dealers left the market almost entirely alone, and the rank and file of consumers were uninterested. Yesterday, Monday, the market was stagnant, with about 100 tons sold, and today it was also very quiet, with spot Straits tin quoted at 56.12 1/2 c., New York. London quotations

today were: Spot standard, £254 10s; future standard, £254, and spot Straits, £254 10s. The Singapore price was £260 5s.

**Lead.**—Demand is very light and producers are not inclined to force the market. The quotation of the leading interest is continued unchanged at 6.50 c., New York, as its contract price, and independent producers are quoting 6.30 c. to 6.32 1/2 c., St. Louis.

**Zinc.**—Buying of prime Western zinc is very moderate and the market is exceedingly quiet but very steady, with quotations holding fairly firm at 5.65 c., St. Louis, or 6 c., New York, for early delivery. There is a slight premium for future positions. Ore at Joplin is quoted at \$35, with production and sales about 7000 tons each last week.

**Nickel.**—Wholesale lots of ingot nickel are quoted at 35 c., with shot nickel at 36 c. and electrolytic nickel at 37 c. per lb.

**Antimony.**—Chinese metal for all positions is quoted at 11.25 c., New York, duty paid.

### Non-Ferrous Metals at Chicago

CHICAGO, Jan. 10.—Sales are moderately active except in tin and zinc. Prices for tin are off 1 c. and antimony has advanced. The old metal market is quiet and prices are unchanged.

**Prices, per lb., in carload lots:** Lake copper, 14.25 c.; tin, 58 c.; lead, 6.40 c.; zinc, 5.75 c.; in less-than-carload lots, antimony, 12.50 c. On old metals we quote copper wire, crucible shapes and copper clips, 10 c.; copper bottoms, 9 c.; red brass, 9 c.; yellow brass, 6.75 c.; lead pipe, 5 c.; zinc, 3.50 c.; pewter, No. 1, 34 c.; tin foil, 43.50 c.; block tin, 52 c.; aluminum, 12.50 c.; all being dealers' prices for less-than-carload lots.

### Non-Ferrous Rolled Products

Mill prices on bronze, brass and copper products have not changed since the revision of Dec. 5. There has been no change in the zinc and lead full sheet prices since Aug. 5 and Dec. 1, respectively.

#### List Prices, Per Lb., f.o.b. Mill

On Copper and Brass Products, Freight up to 75 c. per 100 Lb. Allowed on Shipments of 500 Lb. or Over

<b>Sheets—</b>	
High brass.....	18.75 c.
Copper, hot rolled.....	22.75 c.
Zinc.....	10.00 c.
Lead (full sheets).....	10.00 c. to 10.25 c.
<b>Seamless Tubes—</b>	
High brass.....	23.62 1/2 c.
Copper.....	24.50 c.
<b>Rods—</b>	
High brass.....	16.50 c.
Naval brass.....	19.25 c.
<b>Wire—</b>	
Copper.....	15.75 c.
High brass.....	19.25 c.
Copper in Rolls.....	21.75 c.
Brazed Brass Tubing.....	26.75 c.

#### Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of Mississippi River and also allowed to St. Louis on shipments to destinations west of that river.

Sheets, 0 to 10 gage, 3 to 30 in. wide....	33.00 c.
Tubes, base.....	42.00 c.
Machine rods.....	34.00 c.

### Metals from New York Warehouse

#### Delivered Prices Per Lb.

Tin, Straits pig.....	58.00 c. to 59.00 c.
Tin, bar.....	60.00 c. to 61.00 c.
Copper, Lake.....	15.25 c.
Copper, electrolytic.....	15.00 c.
Copper, casting.....	14.25 c.
Zinc, slab.....	7.25 c. to 7.75 c.
Lead, American pig.....	7.65 c. to 8.65 c.
Lead, bar.....	9.90 c. to 10.90 c.
Antimony, Asiatic.....	13.00 c. to 13.50 c.
Aluminum No. 1 ingot for remelting (guaranteed over 99 per cent pure).....	27.00 c. to 28.00 c.
Aluminum ingots, No. 12 alloy.....	26.00 c. to 27.00 c.
Babbitt metal, commercial grade.....	30.00 c. to 40.00 c.
Solder, 1/2 and 1/2.....	39.25 c. to 40.25 c.

### Metals from Cleveland Warehouse

#### Delivered Prices Per Lb.

Tin, Straits pig.....	63.75 c.
Tin, bar.....	65.75 c.
Copper, Lake.....	15.25 c.
Copper, electrolytic.....	15.25 c.
Copper, casting.....	14.50 c.
Zinc, slab.....	7.75 c.
Lead, American pig.....	7.25 c.
Antimony, Asiatic.....	16.00 c.
Lead, bar.....	9.50 c.
Babbitt metal, medium grade.....	19.75 c.
Babbitt metal, high grade.....	67.75 c.
Solder, 1/2 and 1/2.....	37.75 c.

### Rolled Metals, f.o.b. Chicago Warehouse

(Prices Cover Trucking to Customers' Doors in City Limits)

<b>Sheets—</b>	
High brass.....	18.75 c.
Copper, hot rolled.....	22.75 c.
Copper, cold rolled, 14 oz. and heavier.....	25.00 c.
Zinc.....	11.00 c.
Lead, wide.....	9.75 c.
<b>Seamless Tubes—</b>	
Brass.....	25.12 1/2 c.
Copper.....	26.00 c.
Brazed Brass Tubes.....	26.75 c.
Brass Rods.....	16.50 c.

## Rolled Metals from New York or Cleveland Warehouse

Delivered Prices, Base Per Lb.

<b>Sheets—</b>	
High brass .....	18.50c. to 19.25c.
Copper, hot rolled .....	22.75c. to 23.75c.
Copper, cold rolled, 14 oz. and heavier, .....	25.25c. to 26.25c.

<b>Seamless Tubes—</b>	
Brass .....	23.37½c. to 24.37½c.
Copper .....	24.50c. to 25.50c.
Brazed Brass Tubes.....	26.50c. to 27.50c.
Brass Rods .....	16.25c. to 17.25c.

From New York Warehouse

Delivered Prices, Base Per Lb.

Zinc sheets (No. 9), casks.....	10.50c. to 11.00c.
Zinc sheets, open .....	11.00c. to 11.25c.

## REINFORCING STEEL

### More Than 21,000 Tons of Awards and About 6000 Tons of Bars In New Projects

In the total of 21,300 tons of awards in the past week, those outstanding were 8500 tons for the Coyote Point bridge across San Francisco Bay and 3700 tons for the Eighth Street viaduct in Cincinnati. Only two of the new projects, totaling close to 6000 tons, call for as much as 1000 tons. A bridge and a tunnel, both in Seattle, will take 1000 tons each. Awards follow:

OCEAN CITY, N. J., 713 tons, boardwalk, to Truscon Steel Co.  
 CAMP DEVENS, MASS., 500 tons, two battalion buildings, to Bancroft & Martin Rolling Mill Co.  
 PROVIDENCE, R. I., 150 tons, jewelry manufacturing plant, to Truscon Steel Co.  
 PITTSBURGH, 160 tons, warehouse for Donaldson Transfer & Storage Co., to Electric Welding Co.  
 CINCINNATI, 3700 tons, Eighth Street viaduct, to Jones & Laughlin Steel Corporation.  
 DAYTON, OHIO, 1500 tons, municipal sewage disposal plant, to West Virginia Rail Co.  
 CINCINNATI, 125 tons, Linwood School, to Pollak Steel Co.  
 NEW ORLEANS, 200 tons, port of New Orleans, additions to wharves, to Connors Steel Co., Birmingham.  
 CHICAGO, 500 tons of rail steel bars, Providence High School, to Calumet Steel Co.  
 CHICAGO, 150 tons, Washington Park distribution station for Commonwealth Edison Co., to Concrete Steel Co.  
 CHICAGO, 200 tons of rail steel, Powhattan Hotel, to Inland Steel Co.  
 MILWAUKEE, 126 tons, University extension building, to Concrete Steel Co.  
 MILWAUKEE, 290 tons, Lincoln High School, to Concrete Steel Co.  
 CHICAGO, 170 tons of rail and billet steel bars, garage building on Howard Street, to Olney J. Dean & Co.  
 DENVER, COLO., 285 tons, Bureau of Reclamation at Denver, United States Department of Interior (believed to be for use at Orland, Cal.), to Laclede Steel Co.  
 SAN FRANCISCO, 8500 tons, Coyote Point bridge across San Francisco Bay, to Bethlehem Steel Co.  
 OAKLAND, CAL., 100 tons, mausoleum, Mount View Cemetery, to San Francisco jobber.  
 SEATTLE, 150 tons for Queen Anne High School, to Northwest Rolling Mills, Inc.  
 SEATTLE, 100 tons for bridge work, to Northwest Rolling Mills, Inc.

### Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

NEW YORK, 120 tons, foundations for State office building at Center, Leonard, Baxter and Worth Streets; bids closed Jan. 10.  
 PHILADELPHIA, 146 tons, building for La Salle College.  
 PHILADELPHIA, 775 tons, building for Quaker City Cold Storage Co.; bids in.  
 BUFFALO, 150 tons each, bridges at Bailey Avenue and Buffalo Creek; bids in.  
 MARCY, N. Y., 300 tons, United States hospital; Felton Construction Co., Buffalo, low bidder.  
 CHICAGO, 500 tons, warehouse for Meyer-Marvis.  
 EVANSTON, ILL., 100 tons, Pembroke Hotel.  
 GRAFTON, WIS., 120 tons, Milwaukee River bridge; bids close Jan. 31.

## Old Metals, Per Lb., New York

The buying prices represent what large dealers are paying for miscellaneous lots from the smaller accumulators and the selling prices are those charged consumers after the metal has been properly prepared for their use.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, heavy crucible.....	12.00c.	13.50c.
Copper, heavy and wire....	11.50c.	12.875c.
Copper, light and bottoms...	9.75c.	11.00c.
Brass, heavy .....	7.00c.	8.50c.
Brass, light .....	6.00c.	7.50c.
Heavy machine composition.	9.50c.	10.75c.
No. 1 yellow brass turnings.	7.75c.	8.75c.
No. 1 red brass or composition turnings .....	8.75c.	9.75c.
Lead, heavy .....	5.25c.	5.625c.
Lead, tea .....	4.25c.	4.75c.
Zinc .....	3.75c.	4.25c.
Sheet aluminum .....	12.75c.	14.50c.
Cast aluminum .....	12.75c.	14.50c.

ST. LOUIS, 600 tons, 350 tons rail and 250 tons billet steel, Arsenal Street viaduct over River Des Peres; Board of Public Service to open bids Jan. 17.

SEATTLE, 1000 tons, Weaver Street bridge.

SEATTLE, 1000 tons, Beacon Hill tunnel.

SEATTLE, 700 tons, Elks' Temple.

SEATTLE, 110 tons, addition to high school; bids received.

SEATTLE, 180 tons, garage, Fifth and Virginia Streets; bids received.

ELLENSBURG, WASH., 118 tons, Klittitas Main Canal, United States Bureau Reclamation; bids Feb. 10.

## RAILROAD EQUIPMENT

### Total of 1800 Cars Bought and 1000 Under Inquiry

The Southern Railway has awarded 500 automobile box cars in addition to 5450 ordered in December. The Texas & Pacific has closed on 1000 gondola, flat and automobile cars. Pending business includes 500 gondola cars for the Central of Georgia Railway and 500 flat cars for the Union Pacific.

Great Northern is in the market for six Mallet type locomotives.

New York, Ontario & Western will buy six 4-8-4 locomotives.

Chicago Great Western is asking for prices on 50 stock car underframes and five caboose car underframes.

Union Pacific will purchase 500 flat cars, 10 dining cars and 10 coaches.

Southern Railway has ordered 500 automobile box cars from American Car & Foundry Co. These are in addition to 5450 freight cars placed late in December.

Louisville & Nashville has placed an order for 100 ballast cars with Rodger Ballast Car Co.

Texas & Pacific has ordered 500 gondola cars from Pressed Steel Car Co.; 300 flat, 200 automobile and 10 platform caboose cars from American Car & Foundry Co., and three dining and five baggage and express cars from American Car & Foundry Co.

Pacific Fruit Express has placed an order for 100 underframes with Pacific Car & Foundry Co.

Texas Co. has ordered 200 insulated 10,000-gal. tank cars from American Car & Foundry Co.

Fruit Growers Express is in the market for 480 steel underframes.

Mobile & Ohio has ordered eight six-wheel switching locomotives and five Mikado-type locomotives from American Locomotive Co.

Central of Georgia Railway is in the market for 500 gondola cars.

Atchison, Topeka & Santa Fe will buy 200 underframes.

### Rhode Island Industrial Safety Conference to Be Held Jan. 17

Methods for the prevention of industrial accidents in representative New England plants will be discussed at the Rhode Island Industrial Safety Conference, to be held at the Hotel Biltmore, Providence, on Jan. 17. Among the papers scheduled is one on "Relation of the Management to Accident Prevention," by Frank A. Viall, Brown & Sharpe Mfg. Co., Providence.



## PERSONAL

Charles D. Dyer, for almost 25 years active in the affairs of the Shenango Furnace Co., Pittsburgh, and a well known figure in the merchant pig iron business as well as in the iron ore and Lake transportation industries, on Dec. 31 resigned as vice-president and director of the Shenango company and, as a director of the Lake Carriers Association, the Lake Protective Association and the Great Lakes Towing Co. Mr. Dyer is not retiring from business, as he has several private interests to which he will devote his attention, and he will have an office at 616 Oliver Building, Pittsburgh. His leaving the interests with which he has been so closely identified for so many years, however, will be regretted by all with whom he has been associated, and the service he rendered during the war period will long be recalled. As president of the American Pig Iron Association in 1917 and 1918 and as Pittsburgh representative of the sub-committee of the American Iron and Steel Institute on pig iron, iron ore and Lake transportation, he worked in conjunction with the War Industries Board. Few were more active in the direction of pig iron production and distribution than Mr. Dyer. He was general freight agent of the Crucible Steel Co. of America in 1904, when he was selected by W. G. Park and the Union Trust Co., Pittsburgh, receivers for the Clairton Steel Co., as manager of that company. At the end of the receivership the company was taken over by the Carnegie Steel Co., and now is the Clairton works of that company. His ability in this activity attracted the attention of William P. Snyder, who had been president of the Clairton company, and with the termination of his duties as manager for the receivers, he joined the old Shenango Furnace Co., as assistant president under Mr. Snyder. When the present corporation was formed in 1906, he became vice-president and a director. He also has been secretary and a director of the Shenango Steamship Co. and will retain those offices. Besides being a director, he was a member of the executive committee of the Lake Carriers Association and the Great Lakes Towing Co. and of the advisory committee of the Lake Protective Association.



C. D. DYER

Kenneth Jensen has been appointed general manager of the Kensington Steel Co., Chicago, manufacturer of special and manganese steel castings. This is a newly created position. Mr. Jensen has had 10 years of experience in the engineering, manufacturing and selling departments of the company.

Percy C. Brooks, president of the E. N. T. Fairbanks Co., St. Johnsbury, Vt., has been elected a vice-president of Fairbanks, Morse & Co., Chicago.

Harry Dwight Smith, founder and president of Fuller & Smith, Cleveland, withdrew from the organization on Dec. 31, after an association with it of 20 years. His interests have been acquired by associates.

George W. McIntyre is in charge of a new sales office opened by the Reed-Prentice Corporation, Worcester, Mass., at 1508 New York Evening Post Building, 75 West Street, New York. He was identified for many years with the Niles-Bement-Pond Co. at New York and Chicago.

Francis J. Drago, associated in various capacities with the Jacobs Mfg. Co., Hartford, Conn., maker of chucks, in the past two years, has been made assistant treasurer of the company.

L. A. Green, formerly president L. A. Green Railway Equipment Co., Pittsburgh, has been appointed general manager of the Industrial Equipment Corporation, Carnegie, Pa.

Harry R. Patterson, for the past 15 years superintendent of the Rockdale works, American Steel & Wire Co., Joliet, Ill., has been appointed superintendent of the Rankin and Braddock, Pa., works, succeeding Edwin H. Broden, who has been appointed Pittsburgh district mill manager of the company. Mr. Patterson has been with the company for about 25 years and went to the Rockdale works from the Trenton, N. J., plant of the company.

Elmer C. Wayne, manager of the Pittsburgh office of Gould's Pumps, Inc., Seneca Falls, N. Y., has resigned and will be succeeded by John B. Foley, formerly his assistant. Mr. Wayne will become connected with the Pittsburgh office of the Massachusetts Mutual Life Insurance Co.

L. H. Waldrup has opened an office for the Driver-Harris Co., Harrison, N. J., at 7016 Euclid Avenue, Cleveland.

F. E. Flynn, manager of the strip steel departments of the Weirton Steel Co., Weirton, W. Va., has resigned to become assistant vice-president and general manager of operations for the Trumbull Steel Co., Warren, Ohio.

John Van Horne, recently in the Atlanta, Ga., office of the Lincoln Electric Co., Cleveland, has been transferred to Moline, Ill., where he will be located at 514½ Fifteenth Street, handling sales in Moline and Rock Island, Ill., and Davenport, Iowa.

Eugene D. Milener, for several years associated with the Consolidated Gas, Electric Light & Power Co., Baltimore, has been appointed industrial gas research representative for the American Gas Association, New York.

J. E. Lewis, president Harbison-Walker Refractories Co., Pittsburgh, has been elected a director of the American Arch Co., New York.

L. A. Quinn, who has been acting manager of the Birmingham, Ala., office of the Niles-Bement-Pond Co., New York, has been made sales manager in that district.

Edwin H. Broden has been appointed manager of the Pittsburgh district wire mills, American Steel & Wire Co., succeeding C. F. Blackmer, recently made general superintendent of wire mills. Mr. Broden was born in Cleveland and was graduated from the Central High School in that city, later taking special courses at Yale University. He has been with the American company and its predecessors for 33 years. He was chief draftsman H. P. Nail Co., Cleveland, from 1895 to 1898; chief draftsman and engineer in the Lake Shore district, Cleveland, from 1898 to 1901; assistant constructing engineer National Wire Corporation, New Haven, Conn., from 1901 to 1905; chief draftsman Newburgh Wire Works, Cleveland, from 1905 to 1906; chief draftsman Allentown works, Allentown, Pa., from 1906 to 1907; engineer attached to general superintendent's office, Pittsburgh, in 1907; assistant superintendent Rankin works, Braddock, Pa., from 1907 to 1913; superintendent Braddock works, Braddock, Pa., from 1913 to 1916, and superintendent Rankin works from 1916 to 1925. On Feb. 15, 1925, the Rankin and Braddock works were consolidated under one management and Mr. Broden was made superintendent, holding that position until his recent promotion. He is a member of the American Society of Mechanical Engineers and of American Iron and Steel Institute.

William Henry Harrison, formerly senior mining engineer of the United States Bureau of Mines, and later senior valuation and appraisal engineer of the Bureau of Internal Revenue, has resigned his connections with the Treasury Department and returned to private consulting practice, with offices in the National Press Building, Washington.

M. J. Schmitt, recently in charge of the Milwaukee branch of the Kearney & Trecker Corporation, Milwaukee, has been appointed assistant sales manager. He will continue to look after the Milwaukee territory and will be assisted by R. F. Shaw, who is being transferred from the Chicago branch.

George L. Pollock, vice-president and treasurer of the Burnside Steel Foundry Co., 1300 East Ninety-second Street, Chicago, resigned, Jan. 1, to become vice-president of the Nugent Steel Castings Co., 3100 South Wood Street, Chicago. He had been associated with the Burnside company since its founding. Previously he served for a time in the purchasing department of the Chicago, Burlington & Quincy Railroad and later was purchasing agent of the Wheeling & Lake Erie Railway, of the Chicago & Western Indiana Railroad and of the Belt Railway of Chicago.



Horace A. Frommelt has been appointed director of personnel for the American Steel Foundries, Wrigley Building, Chicago, and much of his immediate work will be concerned with industrial training. He was for a number of years apprentice superintendent for the Falk Corporation, Milwaukee, and more recently has been engaged in consulting work at St. Louis.

W. A. Spuehler has been elected vice-president and treasurer of the Burnside Steel Foundry Co., Chicago, succeeding George L. Pollock. N. J. Finley has been named secretary of the company.

Arthur E. Hageboeck, secretary and treasurer of the Frank Foundries Corporation, Moline, Ill., was the speaker at the monthly meeting of the Wisconsin Gray Iron Research Group, held in Milwaukee on Jan. 11. His subject was "Cost Control in the Gray Iron Foundry."

A. G. Dulliver, night superintendent at the motor plant of the Chevrolet Motor Co., Flint, Mich., has been appointed superintendent of the motor division, succeeding Harry Nickerson, who has been made works manager for the Oakland Motor Car Co., at Pontiac, Mich. I. B. Smith has been named plant superintendent for the Oakland company.

Col. William A. Starrett, of Starrett Brothers, New York, will be the principal speaker at the January meeting of the Credit Association of the Building Trades of New York.

John T. Chidsey, president and general manager of the Root Co., Bristol, Conn., was recently the guest of honor at a banquet given by executives and foremen of the company, commemorating the twentieth anniversary of its present organization.

Harvey Hubbell, Jr., has been elected president and treasurer of Harvey Hubbell, Inc., Bridgeport, Conn., succeeding his father, the late Harvey Hubbell, Sr. The younger Mr. Hubbell was associated with his father in the management of the business for a

number of years, and no changes in the established policies of the company are contemplated.

W. G. Guthrie has resigned as factory and production manager of the Peerless Motor Car Corporation, Cleveland, to become regional production manager for the General Motors Export Co. in Europe. He will have supervision of the company's manufacturing plants in Germany, France, Denmark, Sweden, Egypt and Spain. His headquarters will be in London. Previous to his association with the Peerless company, Mr. Guthrie was connected with the Buick and Oldsmobile divisions of the General Motors Corporation.

Earl F. Varnum, employment officer of the Commonwealth Steel Co., Granite City, Ill., has been made assistant to the general manager. He began his service with the Commonwealth company in 1910 as time-keeper and was assistant in the safety and fellowship department from Jan. 1, 1913, until May, 1915, when he was put in charge of the employment department, of which he will retain general supervision. Milton Allen, formerly assistant, succeeds him as employment officer.

Collis Johnson, sales manager for the Stockland Road Machinery Co., Minneapolis, has been appointed to a similar position for the Howard-Cooper Co., Portland, Ore.

Leonard W. Williams has retired from the pig iron firm of Park & Williams, Inc., Real Estate Trust Building, Philadelphia, and about Feb. 1 will become a partner in the firm of Stone, Williams & Kays, Philadelphia, which will deal in real estate. The firm of Park & Williams was organized in 1916 by Mr. Williams and Laird U. Park, and the latter will continue the business without change of name. The firm is sales agent for the merchant pig iron produced by the Alan Wood Iron & Steel Co., Philadelphia, and also district sales agent for the Superior Sheet Steel Co., Canton, Ohio, and the Vulcan Mold & Iron Co., Latrobe, Pa. Mr. Williams served under J. Leonard Replogle during the world war in the pig iron section of the War Industries Board.

Dr. John A. Mathews, vice-president Crucible Steel Co. of America, addressed the Indianapolis chapter of the American Society for Steel Treating on Jan. 9, his subject being "The Role of Chromium in Alloy Steels."

O. Z. Klopsch, associated with the Wolverine Tube Co., Detroit, spoke on "The Quenching of Steel" at a meeting of the Cincinnati chapter of the American Society for Steel Treating on Jan. 5.

Walter S. Hollaender has become vice-president and secretary of the Cincinnati Metal Co., Cincinnati. He was formerly connected with the Hilb Smelting Co. of that city.

J. F. Lincoln, vice-president of the Lincoln Electric Co., Cleveland, spoke before the Worcester, Mass., section of the American Society of Mechanical Engineers on Jan. 10.

Dr. Frederick C. Langenberg, vice-president Climax Molybdenum Co., New York, talked on the meaning and value of impact testing with special reference to its use in the study of nickel steels before the Boston chapter, American Society for Steel Treating, on Jan. 6.

Walter T. Noble, since 1890 superintendent of the E. D. Jones & Sons Co., Pittsfield, Mass., and associated with that concern since 1872, has resigned. He is 75 years of age. Harry M. White, assistant superintendent, who has been with the company 28 years, will succeed Mr. Noble.

Hugo W. Weimer, formerly assistant chief engineer Allis-Chalmers Mfg. Co., and later chief engineer Power & Mining Machinery Co., Milwaukee, has become affiliated with the Hunter Machinery Co., Milwaukee, in a consulting capacity, to design sand and gravel plants. The Hunter company has just been ap-



pointed exclusive agent for Wisconsin and Michigan of the Galland-Henning Co. line of screens, washers, elevators, etc., and is also representative of Sauerman drag scrapers and cableways and Northwest cranes and shovels.

John Gold, chief metallurgist Weirton Steel Co., Weirton, W. Va., has been appointed operating manager of the strip and stripsheet mill division, succeeding Frank E. Flynn, who resigned recently to become assistant to Charles Elliott, vice-president and general manager Trumbull Steel Co., Warren, Ohio. Mr. Flynn, before joining the Weirton Steel Co. about 10 years ago, had been with the Superior Steel Corporation, Carnegie, Pa. Mr. Gold is a graduate of Pennsylvania State College and became chief metallurgist of the Weirton company at the close of the World War.

Milton C. Ryer, since 1903 manager of the Denver, Colo., branch of the Crucible Steel Co. of America, resigned Jan. 1, and has taken up residence at La Jolla, Cal. He entered the employ of the Crescent Steel Co. at Denver in 1896, and when that company was taken over by the Crucible organization in 1900 he continued in the sales department of the latter company.

J. A. Hammond and E. R. Geib have been appointed assistant managers in charge of carbon brush and specialties sales, and illuminating carbon sales, respectively, for the National Carbon Co., Cleveland. The company has also announced the appointments of E. C. Friday, J. L. Green and V. J. Nolan as district managers in charge of the branch offices at New York, Chicago and Pittsburgh respectively, and of J. B. Collins as sales engineer in charge of the Birmingham, Ala., office.

L. C. Hassler, formerly chief engineer of the R. H. Beaumont Co., Philadelphia, has been transferred to the company's western headquarters in Chicago, and will devote himself to sales in that territory. William P. Alexander, who resigned from the Beaumont organization in May, 1927, has returned to the company and will be engaged in sales work in the Philadelphia, Baltimore and Washington district.

Alexander P. Moore, former ambassador to Spain, has been elected a vice-president of the Pittsburgh Steel Products Co., with headquarters in New York, according to an announcement by Homer D. Williams, president of the Pittsburgh Steel Co., the parent organization.

H. C. Baldry, vice-president Flour City Ornamental Iron Co.; George E. Buzza, president and treasurer of the Buzza Co.; T. D. Crocker, assistant general manager Northern States Power Co.; R. G. Mitchell, vice-president Dodson-Fisher Co.; W. Edward Nelson, president B. F. Nelson Mfg. Co.; G. W. Robertson, president and treasurer of the Robertson Tool Co., and S. V. Wood, president Minneapolis Electric Steel Casting Co., all of Minneapolis, have been elected directors of the Manufacturers' Association of that city.

S. W. Calhoun has been appointed Southeastern district representative for the Foote Brothers Gear & Machine Co., Chicago. He will have charge of sales in Tennessee, Kentucky, Virginia, North and South Carolina and southern West Virginia, with headquarters at Asheville, N. C.

David Pride has been appointed manager of works Superior Steel Corporation, Carnegie, Pa. Since 1918 he has been assistant general superintendent of the City mills, Carnegie Steel Co., and previously had been superintendent Lower Union mills and master mechanic Upper Union mills of the same company.

C. F. Blackmer, recently promoted to the general superintendency of wire mills for the American Steel &

Wire Co., was the guest of his former associates of the operating and sales departments in the Pittsburgh district at a dinner given at the Union Club, Pittsburgh, on Jan. 7. Mr. Blackmer heard many expressions of esteem from those with whom he has been closely associated during the past three years, and Edwin H. Broden, who succeeds him as Pittsburgh district mill manager, presented him with a chair for his new home in Cleveland on behalf of these friends. E. A. Niven, Pittsburgh district sales agent of the company, was toastmaster.

Clinton M. Finney recently was elected comptroller, Warren H. Jones, secretary, and Edward J. Mulligan, assistant secretary of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Mr. Finney formerly was with the Worthington Pump & Machinery Corporation, New York, of which he was comptroller from 1919 to 1926 and vice-president during the past two years. Previously he was secretary and treasurer of the Mack Truck Co. and treasurer of the George V. Cresson Co. He is a graduate of the University of Pennsylvania. Mr. Jones has been assistant secretary of the Westinghouse company since 1911 and previously was secretary to Robert Mather, former chairman of the board. Mr. Mulligan started work in the office of George Westinghouse 25 years ago and recently was secretary to James C. Bennett, lately elected a vice-president of the company.

George F. Anglin, for the past four years Pittsburgh manager of the Torrington Mfg. Co., Torrington, Conn., and of the Blake & Johnson Co., Waterbury, Conn., before its merger with the former concern, has joined the machinery and equipment sales department of Mackintosh-Hemphill Co., Pittsburgh. He has had 20 years of experience in various operating capacities with the Bethlehem Steel Co., Bethlehem, Pa.; the Sharon Steel Hoop Co., Sharon, Pa.; the Pittsburgh Crucible Steel Co., Pittsburgh, and the Pittsburgh Knife & Forge Co., Pittsburgh.

D. F. Smith, formerly assistant in the motor division of the railroad department, Erie, Pa., works, General Electric Co., has been appointed general superintendent of that plant.

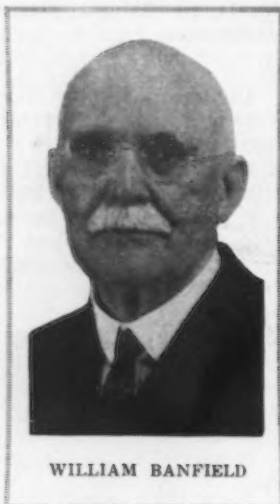
A. H. Grayburn, assistant secretary and assistant treasurer of the Norma-Hoffmann Bearings Corporation, Stamford, Conn., has resigned, as of Dec. 31, and has become identified with the Hope Engineering & Supply Co., Mount Vernon, Ohio, and New York. A. H. Ritter, New York district manager for the Norma-Hoffmann company, goes to Stamford as assistant secretary, and will be succeeded in New York by F. W. Mesinger from the Stamford office. Norman Bell, assistant sales manager, has also been made assistant secretary. E. C. Lenon will be in charge of orders, shipments, credits and collections at Stamford.

E. C. Godfrey, formerly sales representative at Detroit for the Pratt & Whitney Co., Hartford, Conn., has been appointed sales manager of the Automatic Nut-Thread Corporation, 3617 North Eighth Street, Philadelphia, manufacturer of automatic nut tapping machines.

H. C. Woodside, long identified with the Pittsburgh Steel Co., has severed that connection to become manager of sales for the Sheet Metal Specialty Co., a subsidiary of the Follansbee Brothers Co., Pittsburgh. He will make his headquarters at the Follansbee, W. Va., plant. He was a member of the sales staff of the Pittsburgh Steel Co. in Pittsburgh from 1903 until 1921, when he resigned to become sales manager of the Northwestern Barbed Wire Co., Sterling, Ill. He retained that position until 1924 and for the next two years was engaged in the wire and heavy hardware business on his own account as head of the H. C. Woodside & Co., with headquarters in Chicago. In 1926 he returned to the Pittsburgh Steel Co. as special representative.

## OBITUARY

**WILLIAM BANFIELD**, a pioneer in the American tin plate and sheet steel industries and for 20 years vice-president and general manager in charge of construction and operations for the Follansbee Brothers Co., Pittsburgh, died in a Cleveland hospital on Jan. 4. He was born in Staffordshire, England, in 1854 and followed his father, who had come to this country in 1872, to work in the first tin plate mill in the United States, which was built by Rogers & Burchfield at Leechburg, Pa. From 1872 until he retired in 1924, Mr. Banfield was active in the operation of tin plate and sheet mills. He rose from heater to manager of the mill at Leechburg, which passed from its original owner to Kirkpatrick & Co. In 1885 he organized Wallace, Banfield & Co., which bought an idle mill at Irondale, Ohio, and operated it until 1894, when it was taken over by the American Tin Plate Co. For the next five years he was district manager in charge of six plants of that company. The Chester Rolling Mill Co., Chester, W. Va., which he organized in 1900, was taken over by the American Sheet Steel Co. In 1904, Mr. Banfield joined the Follansbee Brothers Co., Pittsburgh, and superintended the building of its plants at Follansbee, W. Va., and at Toronto, Ohio. He wrote a review of the American tin plate industry, which was published in *THE IRON AGE*, Feb. 28, 1924. Following his retirement from the steel industry, he devoted his time to private interests in and around Steubenville, Ohio.



WILLIAM BANFIELD

**SAMUEL HOWARD BELL**, secretary of the Warren Foundry & Pipe Corporation, 11 Broadway, New York, and assistant secretary of the Warren Foundry & Pipe Co., Wharton, N. J., died suddenly at Wharton on Jan. 9. He was associated for a number of years with the Johnstown Iron Works, Johnstown, Pa., and later with the Ingersoll-Rand Co., New York. He was secretary of the Replogle Steel Co. before that company was taken over last year by the Warren Foundry & Pipe Corporation.

**MARVIN HUGHITT**, formerly chairman of the board of the Chicago & North Western Railroad and one of the pioneer railroad builders of the West, died at his home in Lake Forest, Ill., on Jan. 6, in his ninety-first year.

**WILLARD BROWN**, chief engineer of the Bourne-Fuller Co., Cleveland, died Dec. 28 after an illness of several weeks. He had been in poor health for two years. He was born in Newark, N. J., and was graduated from the Stevens Institute of Technology, Hoboken, N. J., in 1895 as a mechanical engineer. From 1896 to 1898 he served as assistant mechanical engineer for the King Bridge Co., Cleveland, and the next year as a draftsman for the Lorain Steel Co. In 1899 he became assistant chief engineer of the Dominion Iron & Steel Co., Sydney, N. S., and two years later was made superintendent of construction for the Colorado Fuel & Iron Co., Pueblo, Colo. In 1902 he became superintendent of construction for the old Garret-Cromwell Engineering Co., Cleveland, and later served five years as chief engineer of that company. In 1912 he became chief engineer of the Upson Nut Co., Cleveland, which was later taken over by the Bourne-Fuller Co. For many years he had been an active member of the Cleveland Engineering Society and had served two years as one of its directors.

**CHARLES J. WEBB**, vice-president International Seal & Lock Co., Chicago, died Jan. 3, on board a liner bound for Honolulu, Hawaii.

**GUSTAV HAARMANN**, president of G. Haarmann & Co., Inc., Holyoke, Mass., died in that city on Dec. 17, aged 67 years. He was born at Menden, Prussia, and went to Holyoke in 1884, where he became foreman for C. H. Bausch & Sons. In 1900 he went into the structural iron business under the name of Haarmann & Derichs, retaining that connection until the present Haarmann organization was founded in 1913.

**ROBERT F. DEVINE**, president of the Erie Forge & Steel Co. and the Erie Forge Co., Erie, Pa., died Jan. 3, at St. Vincent's Hospital in that city, following an operation for appendicitis. He was born at Lake Run, Pa., Sept. 17, 1860, and as a boy went to work in the coal mines near his home. Later he learned the blacksmith's trade and worked in Philadelphia, Kansas City, and in Seattle, Wash., where he started a shop of his own. In 1895 he returned to the East and became superintendent of the Frankford Steel & Forging Co., Ellwood City, Pa. He left that company in 1903 and organized a company to take over the Erie Forge Co., Ltd. In 1912, he founded the Erie Forge & Steel Co.

**DAVID Z. NORTON**, director of Oglebay, Norton & Co., Cleveland, iron ore miners and shippers, and formerly associated with the late E. W. Oglebay in a partnership bearing the same name, died Jan. 6, aged 77 years. He had been ill about 10 days and his death was hastened by the shock caused by the passing away of his wife, who died suddenly in New York earlier in the week. He was born in Cleveland and was graduated from Kenyon College, Gambier, Ohio. In 1868 he became a messenger for the Commercial National Bank in Cleveland and, rising rapidly, became cashier of that institution. He left the bank in 1890 to become associated with E. W. Oglebay, a pioneer in the Lake Superior iron ore industry. Oglebay, Norton & Co. was organized to succeed Tuttle, Oglebay & Co., and Mr. Oglebay took Mr. Norton into the firm as a partner to direct its financial affairs. In 1924, when the partnership was changed into an incorporated company, Mr. Norton was named as one of its directors and both he and Mr. Oglebay retired from active connection with the company. Mr. Norton was a leader in business, civic and social life of Cleveland and did much to aid the city's commercial development. He was a director of the American Shipbuilding Co., Columbia Steamship Co., Union Trust Co. and the National Refining Co., and a trustee of Western Reserve University, Adelbert College, Western Reserve Historical Society, Cleveland School of Art and Cleveland Museum of Art. He is survived by two sons and a daughter, one of the sons Robert C. Norton, treasurer of Oglebay, Norton & Co.



D. Z. NORTON

**RICHARD J. THOMAS**, pioneer foundry owner of Milwaukee, died Dec. 29, aged 78 years. He established the Thomas & Yale brass foundry in 1872, and the Thomas Brass & Iron Co. in 1879. In 1915 he formed the Maas Carbonator Co., of which he was president and active head until his death.

**JOHN J. CHANDLER**, vice-president of the Hoggson & Pettis Mfg. Co., New Haven, Conn., died at his home in that city on Dec. 18. He joined the company as an apprentice in 1881 and had served it continuously since that time.



# Exports and Imports Both Increase

November Higher Than October—11-Month Total  
of Exports 2 Per Cent Above 1926; Imports  
33 Per Cent Lower

WASHINGTON, Jan. 7.—With exports of iron and steel products for the 11 months ended with November aggregating 2,012,541 gross tons, the total for last year will reach 2,195,000 tons, if the monthly average of 182,958 tons for the 11-month period was maintained through December. As exports for the calendar year 1926 amounted to 2,167,048 tons, a moderate gain is indicated for 1927. Imports for the 11 reported months of last year totaled 686,279 tons, making a monthly average of 62,389 tons. This, if continued through December, would make a total of 749,000 tons, a sharp drop from the 1,111,090 tons imported in 1926, due largely to the decline in incoming shipments of pig iron.

Exports in November, 1927, were 177,928 tons, against 170,255 tons in October. For the 11 months the 2,012,541 tons may be compared with 1,969,022 tons for the corresponding period of 1926. Imports in November rose to 61,882 tons from 52,503 tons in October. For the 11 months the total of 686,279 tons is compared with 1,034,583 tons for the 11-month period of 1926.

Of the November exports, 71,457 tons went to Canada, representing 39 per cent of the total. For the 11 months ended with November of last year exports to Canada aggregated 769,921 tons, or 38 per cent of the total, comparing with 781,653 tons exported to Canada during the 11 months of 1926, when approxi-

mately 39 per cent of the total went to that country.

Of the imports in November 13,088 tons came from Belgium, which led all other countries. France was second with 11,693 tons and India third, with 9245 tons. Canada sent 8338 tons; Germany, 7179 tons; Great Britain, 6153 tons. In the finished lines structural shapes, with a total of 14,479 tons, represented the largest import movement in November, the greater portion coming from Belgium. Manganese ore imports for the month amounted to 26,802 tons of concentrates. This includes 63 tons of concentrates from Cuba, which now are separated, as are other manganese imports, into gross weight and concentrates.

Tin plate exports amounting to 18,121 tons were the largest of any single outgoing product in November. Japan led as the destination of tin plate exports, taking 2790 tons for the month. Canada took 2114 tons. For the 11 months tin plate exports to Japan totaled 48,942 tons, while shipments of this product to Canada amounted to 40,081 tons. Exports of casing and oil line pipe in November amounted to 6226 tons, Colombia taking 1603 tons; Soviet Russia, 647 tons; Argentina, 628 tons; Venezuela, 623 tons; and Mexico, 400 tons. Exports in November of welded black pipe amounted to 6531 tons. Japan took 1674 tons; United Kingdom, 1060 tons; Colombia, 487 tons; and Cuba, 306

## Exports of Iron and Steel from the United States

	(In Gross Tons)		11 Months	
	November		Ended November	
	1927	1926	1927	1926
Pig iron .....	8,090	3,724	47,913	22,557
Ferromanganese .....	27	70	1,566	743
Scrap .....	15,392	6,234	215,635	97,027
<i>Pig iron, ferroalloys and scrap .....</i>	<i>23,509</i>	<i>10,028</i>	<i>265,114</i>	<i>120,327</i>
Ingots, blooms, billets, sheet bar, skelp....	15,359	14,981	96,003	95,038
Wire rods .....	620	2,547	14,680	16,851
<i>Semi-finished steel....</i>	<i>15,979</i>	<i>17,528</i>	<i>110,683</i>	<i>111,889</i>
Steel bars .....	10,642	15,028	103,138	126,818
Alloy steel bars .....	622	463	5,449	4,605
Iron bars .....	144	571	3,778	4,797
Plates, iron and steel	11,794	16,301	124,188	129,452
Sheets, galvanized....	10,458	19,223	142,601	161,473
Sheets, black steel....	9,614	15,368	144,316	156,195
Sheets, black iron....	978	1,300	14,657	16,535
Hoops, bands, strip steel .....	4,138	4,372	40,409	42,703
Tin plate; terne plate	18,121	28,116	238,275	219,047
Structural shapes, plain material....	13,846	15,482	133,759	146,504
Structural material, fabricated .....	9,236	4,259	63,826	71,010
Steel rails .....	10,799	23,385	159,822	168,112
Rail fastenings, switches, frogs, etc.	2,835	3,343	31,423	38,918
Boiler tubes, welded pipe and fittings....	17,762	31,188	239,494	255,716
Plain wire .....	3,517	1,709	32,591	29,433
Barbed wire and woven wire fencing.	4,421	2,956	48,265	49,127
Wire cloth and screening .....	146	188	2,101	1,813
Wire rope .....	480	490	4,171	4,446
Wire nails .....	1,092	704	8,624	11,115
Other nails and tacks	592	492	7,579	7,394
Horseshoes .....	39	56	509	627
Bolts, nuts, rivets and washers, except track .....	979	929	11,022	12,295
<i>Rolled and finished Steel .....</i>	<i>132,255</i>	<i>185,923</i>	<i>1,559,812</i>	<i>1,659,135</i>
Cast iron pipe and fittings .....	2,752	2,834	26,352	30,910
Car wheels and axles.	893	1,234	15,834	16,004
Iron castings .....	800	571	10,202	8,432
Steel castings .....	351	498	6,432	7,010
Forgings .....	348	90	4,517	2,500
<i>Castings and forgings</i>	<i>5,144</i>	<i>5,227</i>	<i>63,337</i>	<i>64,856</i>
All other .....	1,041	1,124	13,410	12,815
<b>Total .....</b>	<b>177,928</b>	<b>219,830</b>	<b>2,012,541</b>	<b>1,969,022</b>

## Imports of Iron and Steel into the United States

	(In Gross Tons)		11 Months	
	November		Ended November	
	1927	1926	1927	1926
Pig iron .....	16,142	17,560	118,769	430,990
Ferromanganese* .....	2,469	4,365	25,689	36,521
Ferrosilicon† .....	308	1,692	6,965	11,784
Ferrochrome† .....	20	....	435	524
Scrap .....	6,404	7,661	56,741	80,318
<i>Pig iron, ferroalloys and scrap .....</i>	<i>25,343</i>	<i>31,278</i>	<i>208,599</i>	<i>560,137</i>
Steel ingots, blooms, billets and slabs....	1,187	639	11,785	29,150
Iron blooms, slabs, etc. ....	....	....	91	323
Wire rods .....	2,812	1,190	16,915	9,206
<i>Semi-finished steel..</i>	<i>3,999</i>	<i>1,829</i>	<i>28,791</i>	<i>38,679</i>
Rails and splice bars..	343	2,078	15,504	61,794
Structural shapes....	14,479	15,348	147,319	110,645
Boiler and other plates	241	259	3,491	4,151
Sheets and saw plates	1,226	1,170	14,466	9,056
Steel bars .....	5,654	7,785	83,330	97,136
Bar iron .....	230	456	3,398	5,033
Hoops, bands and cotton ties .....	2,113	4,312	31,696	25,522
Tubular products (wrought) .....	2,919	5,029	48,363	25,755
Nails, tacks, staples..	286	714	5,441	4,898
Tin plate .....	4	41	1,054	2,090
Bolts, nuts, rivets and washers .....	19	5	330	356
Round iron and steel wire .....	294	442	3,666	3,824
Barbed wire .....	32	176	3,766	2,850
Flat wire; strip steel.	138	411	2,399	3,491
Steel telegraph and telephone wire ....	....	90	32	1,125
Wire rope and strand.	107	106	2,028	2,431
Other wire .....	19	47	1,128	1,478
Wire cloth and screening .....	....	33	....	313
<i>Rolled and finished steel .....</i>	<i>28,104</i>	<i>38,502</i>	<i>367,461</i>	<i>361,948</i>
Cast iron pipe.....	4,042	9,378	78,657	71,779
Castings and forgings	394	272	2,771	2,353
<b>Total .....</b>	<b>61,882</b>	<b>81,259</b>	<b>686,279</b>	<b>1,034,896</b>
Manganese ore*.....	26,802	20,091	276,723	327,252
Iron ore .....	199,568	185,835	2,488,871	2,350,406
Magnetite (dead burned) .....	3,902	2,132	40,121	66,685

\*Manganese content only.

†Chromium content only.

‡Silicon content only.

## Destination of Iron and Steel Exports from the United States

	(In Gross Tons)		
	November, 1927	January Through November 1927	1926
<b>North and Central America and West Indies.....</b>	<b>93,131</b>	<b>1,007,544</b>	<b>1,033,183</b>
Canada and Newfoundland.....	71,765	771,197	782,579
Cuba.....	5,138	87,480	83,962
Mexico.....	6,472	75,361	94,210
Guatemala.....	152	5,791	9,859
Salvador.....	110	3,688	15,854
Panama.....	1,426	17,695	8,060
British West Indies.....	847	11,755	9,296
Other West Indies.....	5,855	22,756	16,031
Other Central America.....	1,366	11,821	13,332
<b>South America.....</b>	<b>31,063</b>	<b>321,186</b>	<b>326,684</b>
Argentina.....	7,199	75,465	53,655
Brazil.....	9,513	67,143	52,855
Chile.....	4,121	39,724	56,324
Colombia.....	5,674	53,888	60,723
Peru.....	2,059	30,431	34,888
Venezuela.....	1,623	41,432	57,806
Other South America.....	877	13,103	10,433
<b>Europe.....</b>	<b>9,887</b>	<b>187,541</b>	<b>126,562</b>
France.....	195	4,413	8,934
Italy.....	50	40,069	22,747
Rumania.....	324	1,708	2,421
Russia.....	687	8,096	2,870
Turkey.....	673	3,634	3,013
United Kingdom.....	4,670	62,599	58,534
Other Europe.....	3,288	67,022	28,043
<b>Far East.....</b>	<b>41,663</b>	<b>479,141</b>	<b>465,199</b>
Australia.....	1,603	25,002	27,064
British Malaya.....	242	7,721	14,020
China.....	4,389	49,095	39,385
Dutch East Indies.....	2,215	33,347	37,324
India.....	3,383	26,423	35,436
Japan.....	23,707	251,153	227,555
Kwangtung.....	184	18,625	20,001
Philippine Islands.....	5,135	56,632	53,605
Other Asia and Far East.....	805	11,143	10,809
<b>Africa.....</b>	<b>2,181</b>	<b>17,129</b>	<b>17,394</b>
British South Africa.....	605	7,961	8,898
Egypt.....	1,346	4,468	5,588
Portugese East Africa.....	191	3,766	2,295
Other Africa.....	39	934	613
<b>Total.....</b>	<b>177,928</b>	<b>2,012,541</b>	<b>1,969,022</b>

tons. Galvanized pipe exports totaled 2945 tons, Brazil taking 519 tons, and Cuba, 332 tons. The remainder was widely scattered to various foreign markets. Exports of steel rails in November were only 10,799 tons, of which Brazil took 4223 tons. Japan took only 67 tons. But for the 11 months Japan was the leading destination of rail exports, taking 28,560 tons, or 18 per cent of the total of 159,822 tons.

## Sheet and Tin Mill Wages Decline 3 Per Cent

YOUNGSTOWN, Jan. 10.—Tonnage rates for sheet and tin mill workers in Mid-western mills decline 3 per cent to 25½ per cent above base, for January and February, following the bi-monthly settlement. The average selling price of Nos. 26, 27 and 28 gage black sheets shipped during the 60 days ended Dec. 20 was \$3 per 100 lb., against \$3.10 two months previously.

## Coal Production of 1927 Below Previous Year

Total production of bituminous coal in the last calendar year is estimated by the National Coal Association at 519,500,000 net tons. This is within about 500,000 tons of the 1925 total of 520,053,000 tons. It represents, however, a decline of 9 per cent from the 1926 total of 573,367,000 tons. Output for the last week of the year was estimated at 7,700,000 tons, holidays accounting for a drop of more than 2,000,000 tons from the preceding week.

## Decreased Imports of Iron Ore

November imports of iron ore are reported by the Department of Commerce at 199,568 gross tons. This is a reduction of nearly 29,000 tons, or 13 per cent, from the October total of 228,275 tons. It represents, however, a gain of nearly 8 per cent from November, 1926, when the total was 185,835 tons. For the 11 months

ended Nov. 30 imports were 2,488,871 tons, an increase of 6 per cent over the total of 2,350,406 tons for the corresponding period in 1926. Tonnage from Cuba fell off more than 25 per cent in 1927, but the difference was more than made up by increased imports from French Africa, with a smaller increase from Chile. Spanish ore imports decreased to only one-third of last year's total, and represent but a little more than 1 per cent of the year's total. Imports from Sweden were more than five times as great as in 1926.

## Sources of American Imports of Iron Ore

	(In Gross Tons)		11 Months Ended November	
	November 1927	1926	1927	1926
Spain.....	.....	.....	27,165	82,412
Sweden.....	.....	.....	217,272	39,491
French Africa.....	26,599	19,883	446,420	305,845
Canada.....	3,007	40	19,665	16,428
Cuba.....	22,500	22,000	362,613	489,000
Chile.....	141,300	121,800	1,307,700	1,253,400
All other.....	6,162	22,112	108,036	163,830
<b>Total.....</b>	<b>199,568</b>	<b>185,835</b>	<b>2,488,871</b>	<b>2,350,406</b>

## Electric Power Output Growing

November production of electric power by public utility power plants is reported by the United States Geological Survey at 6860 million kilowatt-hours. While this is a reduction of nearly 1 per cent from the 6928 of October, it represents a larger send-out per day than in October, and the highest daily send-out for any month in the history of the industry. September, October and November respectively have made high records in this respect, each being above the previous maximum, which was that of December, 1926. Water-power accounted for about 36 per cent of the November production, compared with 34 per cent in October and 33 per cent in September.

## Plants Operated Without Lost-Time Accidents

During the month of November, 1927, the following plants of the American Sheet & Tin Plate Co., employing a total of 7448 men, conducted operations without a single lost-time accident: Aetna-Standard works, Bridgeport, Ohio; Cambridge works, Cambridge, Ohio; Dover works, Dover, Ohio; Chester works, Chester, W. Va.; Guernsey works, Cambridge, Ohio; Leechburg works, Leechburg, Pa.; Mercer works, Farrell, Pa.; roll and machine works, Canton, Ohio; Pennsylvania works, New Kensington, Pa.; Pittsburgh works, New Kensington, Pa.; Sabraton works, Morgantown, W. Va.; Scottdale works, Scottdale, Pa.; Wellsville works, Wellsville, Ohio; Gary sheet mill, Gary, Ind.

November was the fourth consecutive month during which the Gary sheet mill had no lost-time accidents.

The following plants, employing a total of 5002 men, were operated during November with only one lost-time accident: Laughlin works, Martins Ferry, Ohio; Farrell works, Farrell, Pa.; Shenango works, New Castle, Pa.; American works, Elwood, Ind.

## Stock Bonus for Crane Co. Employees

Announcement has been made to the employees of Crane Co., Chicago, who have been with the firm for more than 10 years, that they are to receive one share of stock for each year of service from the private holdings of R. T. Crane, Jr. About 9000 employees will participate in the gift. A similar distribution was made by Mr. Crane in 1925. At that time \$3,800,000 was distributed among 3800 employees.

"A Night for the Ladies," with the men as hosts, has been arranged jointly by the Metropolitan section of the American Society of Mechanical Engineers and the Women's Auxiliary, for the evening of Jan. 17. The meeting, which will be held at the Engineering Societies Building, New York, will be preceded by an informal dinner at the Fraternity Clubs, New York.



# Machinery Exports Make Gains

November, \$2,000,000 Ahead of October—11 Months, \$30,000,000  
More Than Last Year—Imports Higher

WASHINGTON, Jan. 7.—Making a gain of more than \$2,000,000, exports of machinery in November were valued at \$36,187,195, as against \$33,995,216 in October. For the 11 months ended with November the value was \$397,335,175, a gain of almost \$30,000,000 over the corresponding period of 1926. Exports of power-driven metal-working machines in November numbered 952, valued at \$1,535,322, as listed in THE IRON AGE table, comparing with 782, valued at \$1,084,961, exported in October. The total value of exports of power-driven metal-working machinery in November was \$2,326,537, compared with \$1,274,446 in November, 1926, while for the 11 months period of each year the values were \$17,987,725 and \$13,113,626, respectively.

Industrial machinery exports in November, as listed by the Division of Statistics, Department of Commerce, were valued at \$17,101,313, against \$16,733,510 in October and \$16,156,170 in November, 1926. For the 11 months ended November the value was \$184,259,948, compared with \$164,069,871 for the corresponding period of 1926.

Total imports of machinery and vehicles in November were \$2,143,574, against \$1,948,535 for November, 1926. For the 11-month periods the values were \$25,481,005 and \$24,013,591, respectively. Imports of industrial, office and printing machinery in November were valued at \$1,246,168, against \$1,156,170 in November, 1926. For the 11-month periods the values were \$15,242,261 and \$15,011,478. Imports of machinery listed in THE IRON AGE table were \$1,315,110 in No-

vember, compared with \$1,495,195 in October. For the 11 months ended with November the value was \$17,188,212, compared with \$16,096,841 for the corresponding period of 1926.

## Belgian Mill Prices Firmer in Active Market

ANTWERP, BELGIUM, Dec. 28.—The threat of German steel mills to suspend Jan. 1, as a result of the controversy over the 8-hr. day, has brought out heavier buying than for some time. Consumers are seeking to cover their requirements for at least part of the first quarter, and mills have been able to adopt a firmer position on prices.

The fact that the International Steel Cartel has decided to make no increase in allotments for the first quarter of 1928 is expected to aid in the maintenance of prices, and, with German steel mills operating on an 8-hr. day, their costs should be slightly higher.

## Russia and Bulgaria Buy German Pipe

HAMBURG, GERMANY, Dec. 26.—The Mannesmann Tube Works, which recently received an order from the Russian Government for about 51,000 tons of tubes, has been successful in booking an order from the Bulgarian Government for tubular products and street car equipment valued at about \$850,000.

### Machinery Exports from the United States

(By Value, in Thousands of Dollars)

	November		11 Months Ended November	
	1927	1926	1927	1926
Locomotives .....	\$103	\$47	\$4,687	\$4,838
Other steam engines...	129	398	1,314	1,263
Bollers .....	67	235	1,627	1,630
Accessories and parts...	37	186	590	1,711
Automobile engines.....	446	476	10,600	12,182
Other internal combustion engines .....	590	859	7,642	8,509
Accessories and parts...	208	358	3,037	3,958
Electric locomotives....	129	168	1,153	2,498
Other electric machinery and apparatus.....	610	654	6,796	6,757
Excavating machinery..	568	273	4,548	4,248
Concrete mixers.....	78	63	1,043	694
Road making machinery	224	127	2,583	1,635
Elevators and elevator machinery .....	415	424	4,542	4,785
Mining and quarrying machinery .....	929	1,193	12,211	13,754
Oil well machinery.....	919	1,913	15,973	13,929
Pumps .....	572	548	6,012	5,562
Bending and power presses .....	155	83	1,168	1,260
Forging machines.....	99	71	966	991
Machine tools.....	1,535	638	9,897	6,408
Other metal-working machinery and parts....	560	393	4,483	4,275
Textile machinery.....	1,088	733	10,374	9,354
Sewing machines .....	688	736	8,180	7,946
Shoe machinery .....	190	115	1,562	1,227
Flour-mill and gristmill machinery .....	56	37	520	792
Sugar-mill machinery..	1,064	498	5,454	3,710
Paper and pulp mill machinery .....	268	593	3,491	3,369
Sawmill machinery.....	64	68	739	900
Other woodworking machinery .....	148	139	1,319	1,122
Refrigerating and ice making machinery....	431	610	6,183	4,588
Air compressors.....	585	439	5,465	4,350
Typewriters .....	1,744	1,290	18,539	16,537
Power laundry machinery .....	66	41	1,365	1,176
Typesetting machines...	438	176	4,093	3,348
Printing presses.....	474	390	5,609	5,712
Agricultural machinery and implements.....	5,497	4,585	83,850	80,701
All other machinery and parts .....	15,011	13,109	139,717	142,041
Total .....	\$36,187	\$32,664	\$397,335	\$367,757

\*Details of principal items in another table.

### Exports of Power-Driven Metal-Working Machinery

	November, 1927		October, 1927	
	No.	Value	No.	Value
Engine lathes.....	136	\$264,480	77	\$114,299
Turret lathes.....	39	152,569	12	56,916
Other lathes.....	58	110,253	28	68,218
Vertical boring mills and chucking machines .....	15	36,671	5	6,198
Thread-cutting and automatic screw machines .....	109	134,763	121	150,069
Knee and column type milling machines....	22	52,409	35	48,629
Other milling machines	74	196,801	45	56,982
Gear-cutting machines.	36	85,490	31	70,104
Vertical drilling machines .....	79	28,797	33	50,672
Radial drilling machines	6	22,539	17	26,629
Sensitive drilling machines .....	26	11,971	28	1,032
Other drilling machines	47	55,113	55	95,773
Shapers and slotters...	28	48,612	26	57,837
Planers .....	..	..	2	4,116
External cylindrical grinding machines...	80	184,206	68	142,140
Internal grinding machines .....	148	117,304	50	106,554
Metal-working tool-sharpening machines	49	33,344	149	28,793
Total .....	952	\$1,535,322	782	\$1,084,961

### Imports of Machinery into the United States

(By Value)

	November		11 months Ended November	
	1927	1926	1927	1926
Metal working machine tools.	\$31,675	\$27,228	\$391,021	\$391,597
Agricultural machinery and implements ..	234,602	335,112	5,044,056	4,675,682
Electrical machinery and apparatus ....	168,421	59,374	1,648,796	767,288
Other power-generating machinery .....	54,583	3,009	272,766	75,467
Other machinery	510,693	581,046	7,484,801	8,159,138
Vehicles, except agricultural ..	315,136	205,099	2,346,772	2,027,669
Total .....	\$1,315,110	\$1,210,868	\$17,188,212	\$16,096,841

# Quiet Rules in European Markets

## British Tin Plate Mills Closed Under Tonnage Restriction Scheme—Exports Very Light

(By Cable)

LONDON, ENGLAND, Jan. 9.

WITH the holidays ended, demand for Cleveland pig iron is improving and some consumers are entering into six months' contracts. Export sales of pig iron are still poor, but some increase is noted. The Scotch pig iron trade is depressed and 10 blast furnaces have been blown out, leaving only 21 active out of 85.

Foreign ore continues quiet. Jones & Colver, Sheffield, are reorganizing financially and a receiver has been appointed on behalf of the holders of debenture bonds.

The Union of German Iron and Steel Manufacturers

estimates the world pig iron output in 1927 at 84,600,000 metric tons and the steel ingot and castings production at 100,500,000 metric tons.

Tin plate is moderately active and inquiry is good, but actual sales represent only a portion of capacity, as most mills were closed all last week and some are remaining closed during the current week in compliance with the three weeks stoppage under the restriction of output plan. Galvanized sheets are quiet but prices are being maintained. Black sheets continue inactive.

Continental iron and steel markets are quiet and some products are inclined to easiness. British consumers of semi-finished material are not interested in more than small lots for prompt shipment. Export demand for finished iron and steel is poor.

## German Tariff Reduced on Motor Cars but Increased on Parts

HAMBURG, GERMANY, Dec. 26.—Import duties on automobiles and motors will be reduced Jan. 1, but duties on all parts of cars and motors will be advanced on Jan. 15. This schedule affects several of the foreign assembly plants in Germany, notably those operated by American companies. The new duty on cars is 1000m. per 1000 kg. for countries, such as the United States, with which Germany has commercial treaties.

## Polish Customs Regulations

Poland has reinstituted a custom regulation providing a reduction of 80 per cent from the normal tariff on machinery and apparatus not manufactured in that country but constituting the complete equipment or part of equipment for a newly established factory or its department, according to a report received by the Department of Commerce, Washington, from L. J. Cochran, assistant trade commissioner, Warsaw. This regulation, to remain in effect until March 31, also applies to machinery or apparatus imported to reduce manufacturing costs or increase industrial production.

## German Works Experiments with New Steel Process

HAMBURG, GERMANY, Dec. 26.—Considerable interest has been aroused by the report that the Hoesch Eisen und Stahlwerk, Dortmund, has begun experiments with a new process for the production of steel which will greatly reduce costs. Patents have been acquired by the Hoesch interests, and a small plant is being constructed for experimental production. Commercial output under these patents is said by the Hoesch company to depend entirely upon results of the exhaustive experiments planned.

## German Alloy Steel Makers Unable to Advance Prices

HAMBURG, GERMANY, Dec. 26.—Tool and alloy steel makers recently announced an advance of 10 per cent in export prices, but this was almost immediately withdrawn because of recent price reductions by foreign competitors. A satisfactory volume of shipments to customers in the Far East and South America is reported.

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.87 per £ as follows:

Durham coke, del'd.	£0 17½s.		\$4.27	
Bilbao Rubio ore*	1 0½		4.99	
Cleveland No. 1 fdy.	3 7½		16.44	
Cleveland No. 3 fdy.	3 5		15.83	
Cleveland No. 4 fdy.	3 4		15.59	
Cleveland No. 4 forge	3 3½		15.46	
Cleveland basic (nom.)	3 15	to £3 15½s.	18.27	to \$18.39
East Coast mixed...	3 10½		17.17	
East Coast hematite	3 11		17.29	
Rails, 60 lb. and up	7 15	to 8 0	37.75	to 38.96
Billets	6 0	to 6 10	29.22	to 31.66
Ferromanganese	13 10		65.75	
Ferromanganese (export)	13 0	to 13 5	63.31	to 64.53
Sheet and tin plate bars, Welsh	5 7½	to 5 15	26.18	to 28.01
Tin plate, base box.	0 18	to 0 18½	4.39	to 4.50
Black sheets, Japanese specifications.	13 5	to 13 10	64.53	to 65.75
Ship plates	7 12½	to 8 2½	1.66	to 1.77
Boiler plates	10 10	to 11 0	2.28	to 2.39
Tees	8 2½	to 8 12½	1.77	to 1.99
Channels	7 7½	to 7 17½	1.60	to 1.71
Beams	7 2½	to 7 12½	1.55	to 1.66
Round bars, ¾ to 3 in.	7 5	to 7 15	1.58	to 1.69
Steel hoops	10 10	to 11 0	2.28	to 2.39
Black sheets, 24 gage	10 5	to 10 10	2.23	to 2.28
Galv. sheets, 24 gage	13 0	to 13 5	2.82	to 2.88
Cold rolled steel strip, 20 gage, nom.	14 0	to 14 5	3.04	to 3.10

\*Ex-ship, Tees, nominal.

## Continental Prices, All F. O. B. Channel Ports (Per Metric Ton)

Foundry pig iron: (a)					
Belgium	£3 1s.	to £3 2s.	\$14.85	to \$15.10	
France	3 1	to 3 2	14.85	to 15.10	
Luxemburg	3 1	to 3 2	14.85	to 15.10	
Basic pig iron (nom.):					
Belgium	2 18	to 2 19	14.13	to 14.38	
France	2 18	to 2 19	14.13	to 14.38	
Luxemburg	2 18	to 2 19	14.13	to 14.38	
Coke	0 18		4.39		
Billets:					
Belgium	4 7	to 4 7½	21.19	to 21.31	
France	4 7	to 4 7½	21.19	to 21.31	
Merchant bars:					
Belgium	4 17	to 4 18	1.07	to 1.08	
France	4 17	to 4 18	1.07	to 1.08	
Luxemburg	4 17	to 4 18	1.07	to 1.08	
Joints (beams):					
Belgium	4 8	to 4 10	0.97	to 0.99	
France	4 8	to 4 10	0.97	to 0.99	
Luxemburg	4 8	to 4 10	0.97	to 0.99	
Angles:					
Belgium	4 17½		1.08		
½-in. plates:					
Belgium (a)	6 4	to 6 5	1.37	to 1.38	
Germany (a)	6 4	to 6 5	1.37	to 1.38	
¾-in. ship plates:					
Belgium	5 19	to 6 0	1.32	to 1.33	
Luxemburg	5 19	to 6 0	1.32	to 1.33	
Sheets, heavy:					
Belgium	6 1		1.34		
Germany	6 1		1.34		

(a) Nominal.



# Machinery Markets and News of the Works

## D. L. & W. ISSUES LIST

### Eastern Railroad Inquires for About 30 Machine Tools

#### Ohio Company Buys 15 Presses for Making Automobile Stampings—Business Generally Is in Fair Volume

THE new year has started with fair promise for the machine tool trade. Business has shown no sudden spurt, but the volume of buying has been up to expectations. Many prospective buyers are still hesitant about placing orders for machines for which they have recently inquired, but in some respects sales resistance is not so marked as during the closing months of last year.

An inquiry for 30 miscellaneous machine tools has been circulated by the Delaware, Lackawanna & Western Railroad, but other roads are slow to make known their 1928 shop requirements. The Norfolk & Western

has added three boring mills and several other machines to recent purchases and the Texas & Pacific has bought a radial drill and a steam hammer. The Missouri Pacific is placing orders against a recent list. Railroads in the Chicago area have given no indication yet of submitting lists to the trade for prices.

Fifteen presses totaling about \$100,000 in value have been purchased by the Mullins Mfg. Co., Salem, Ohio, for use in executing a large order for automobile stampings. The Timken Roller Bearing Co., Canton, Ohio, has bought three engine lathes. The Firestone Tire & Rubber Co. and the Goodrich Tire & Rubber Co., both of Akron, Ohio, are figuring on lists of equipment. The Goodrich requirements are said to be for a Western plant. The Studebaker Corporation and the A. O. Smith Corporation are active buyers in the Chicago market.

Price advances occupy the attention of many machine tool manufacturers. Practically all planer companies have made upward revisions, while turret lathe builders have quite generally followed the lead of a Cleveland company in advancing prices about 10 per cent.

## New York

NEW YORK, Jan. 10.

THE Delaware, Lackawanna & Western Railroad has distributed quite widely an inquiry listing about 30 items of miscellaneous shop equipment on which it asks for prices. Excepting the list of the Norfolk & Western, against which purchases were recently made, this is the largest railroad inquiry in the East in some months. Too little time has elapsed since the holidays to determine whether the new year will bring an increasing volume of machine tool buying. So far this month indications point to no particular change from the December rate, but there is a good deal of pending business on which action may be taken soon if improvement in general business conditions encourages manufacturers to go ahead.

Texas & Pacific Railroad has ordered a 5-ft. radial drill and a 2500-lb. steam hammer from Niles-Bement-Pond Co., and same company has sold to Southern Pacific a 300-lb. Beaudry hammer. Other sales include a 13 x 30-in. Pratt & Whitney lathe to Massachusetts Institute of Technology; Oliver disk sander to Hartford, Conn., fire department; No. 2 Pratt & Whitney jig borer to Detroit automobile company; jig borer to an electrical manufacturer in Ohio; two die sinking machines to a forging company in Massachusetts.

Columbia Air Liners, Inc., care of Charles A. Levine, 233 Broadway, New York, has purchased one-story factory at Thirty-sixth Street and Forty-eighth Avenue, Long Island City, totaling about 10,000 sq. ft. floor space, for manufacture of commercial and military aircraft. Initial production will be devoted largely to assembling. It is purposed to take over additional buildings on adjoining site for expansion.

Kent Automatic Parking Garage, Inc., 350 Madison Avenue, New York, awarded general contract to Fred T. Ley Co., 578 Madison Avenue, for a twenty-four-story service, repair and garage building on East Forty-third Street, to cost \$1,600,000 with equipment. Wilbur G. Hudson Engineering Corporation, 30 Church Street, is engineer.

Poldi Steel Corporation of America, 151 Bank Street, New York, has purchased a two and one-half-story building, 45 x 100 ft., on West Eighteenth Street, and will remodel for a new storage and distributing plant.

Huntoon Ice Co., 91 Seventh Avenue, New York, filed plans for a three-story unit, 50 x 92 ft., on West Nineteenth Street, to cost about \$60,000 with equipment; Russell G. Cory, 30 Church Street, architect and engineer.

Samuel Rosenblum, 51 Chambers Street, New York, architect, has plans for a five-story automobile service, repair and garage building, 100 x 108 ft., to cost approximately \$200,000 with equipment.

Atlantic Gypsum Products Co., 40 Central Street, Boston, manufacturer of structural building materials, has awarded general contract to Donnell-Zane Co., 225 Broadway, New York, for a six-story plant at 150th Street and East River, to cost close to \$75,000 with equipment; H. J. Brown, company engineer.

Ovens, power equipment, conveying and other machinery will be installed by the Gotham Cake Co., Long Island City, in a two-story building, totaling 17,000 sq. ft. of floor space.

Melsner & Uffner, 4197 Park Avenue, New York, architects, are drawing plans for a two-story automobile service, repair and garage building, to cost close to \$200,000 with equipment.

Fire, Dec. 31, destroyed portion of storage and distributing plant of Mayer Malbin, Long Island City, N. Y., plumbing equipment and supplies, with loss estimated at \$30,000.

H. Hartzberg & Son, New York, manufacturers of twisted wire brushes and brooms, have leased 20,000 sq. ft. in building at 41-45 East Eleventh Street for a new plant.

William A. Gelsen, 603 East Tremont Avenue, New York, architect, has plans for a two-story automobile service, repair and garage building, to cost close to \$100,000 with equipment.

Western Electric Co., 195 Broadway, New York, has awarded general contract to Karl W. Koch, Inc., 153 West Seventy-second Street, for another addition to its plant at Kearny, N. J., one story, 97 x 346 ft., to cost upward of \$300,000 with equipment.

Chevrolet Motor Co., Flint, Mich., has plans for a one-story addition to its assembling plant at Bloomfield, N. J., 90 x 220 ft., to cost more than \$80,000.

Board of City Commissioners, City Hall, has plans for a marine terminal on Hudson River water front, with elevating, conveying, loading and other freight-handling equipment, to cost \$10,000,000; Philip Gulise, City Hall, city engineer.

Board of Education, 19 Winans Street, East Orange, N. J., has filed plans for a three-story mechanical shop, with

## The Crane Market

**P**URCHASING has been light both in overhead and locomotive cranes, but there is a fair volume of inquiry for single pieces of equipment. Pending business includes two overhead cranes for Public Service Production Co., Newark, N. J., 120-ton crane for Roseland and 65-ton crane for West Orange, N. J. New York Central Railroad has asked prices on 25-ton locomotive crane for Ohio. Among older inquiries still active are 60-ton electric and 10-ton hand power crane for E. L. Phillips & Co., 50 Church Street, New York; 40-ton locomotive crane for export to Russia, inquired for by Amtorg Trading Corporation, 165 Broadway, New York; 150-ton overhead crane for Phoenix Utility Co., 71 Broadway, New York, and two 15-ton lumber handling cranes for Franklin Lumber Co., Newark, N. J. In Chicago, A. Finkl & Sons have issued inquiry for 40-ton electric overhead crane.

Among recent purchases are:

General Electric Co., Schenectady, N. Y., six 5-ton, low headroom, three 10-ton, standard overhead cranes and four

small electric traveling wall cranes for West Philadelphia, reported purchased from unnamed builders.

Limestone Products Co., Newton, N. J., 10-ton crawl-tread steam shovel from unnamed builder.

Livingston Sand & Gravel Co., Livingston, N. J., 10-ton crawl-tread locomotive crane from unnamed builder.

Arundel Corporation, Baltimore, two railroad type steam shovels with  $3\frac{1}{2}$  to 5-cu. yd. dippers, reported purchased from Bucyrus-Erie Co.

Rutland Railroad, Rutland, Vt., railroad steam shovel, reported purchased from unnamed builder.

Erie Railroad, New York, 15-ton overhead crane from Niles Crane Corporation.

American Smelting & Refining Co., 120 Broadway, New York, 5-ton, 39-ft. span, 3-motor overhead crane for Mexico, from Western builder.

Commonwealth Edison Co., Chicago, 50-ton, electric overhead crane for Southwest station to Western builder.

metal, woodworking and other departments, to cost \$90,000 with equipment.

Otis Elevator Co., Eleventh Avenue and Twenty-sixth Street, New York, has plans for a one-story addition to its plant at Harrison, N. J., to cost \$25,000. Bids will be asked in spring.

Merger is being arranged between Passaic Metal Ware Co., Brook Avenue, Passaic, N. J., and Consolidated Can Corporation, 189 Academy Street, Brooklyn. Both plants, it is understood, will be continued and an expansion program carried out.

Clarence D. Chamberlin, aviator, has leased space in the Elasticap Building, Twelfth Street and the Hudson River, Hoboken, N. J., for airplane manufacture, including experimental and assembling departments. Motors will be constructed by Charles B. Kirkham, with plant at Garden City, L. I., formerly chief engineer for Curtiss Aeroplane & Motor Corporation, Buffalo.

Nicholas Bernard, Inc., 166 Central Avenue, Newark, manufacturer of metal novelties and toys, has leased a portion of building of United Radio Corporation, 235-49 Elizabeth Avenue, for a new plant. It is understood that present works will be removed to new location and additional equipment installed.

Harco Steel Co., Inc., Elizabeth, N. J., has completed its shop at 1180 East Broad Street, and is installing machinery and equipment for fabrication of structural steel and ornamental iron.

Safety Carboy Holder & Truck Corporation, 78 Franklin Street, New York, has been taken over by M. Becker and will be operated as manufacturer of special type of barrel holder, tipper, rocker and incinerator.

Ever Ready Machine & Die Co., 608 Humboldt Street, Brooklyn, manufacturer of dies, jigs, tools and metal stampings, has purchased a building, 50 x 100 ft., at Collier and Newell Streets, which it will occupy in about 60 days.

## Philadelphia

PHILADELPHIA, Jan. 9.

**B**IDS have been asked on general contract by Philadelphia Rubber Works Co., Land Title Building, Philadelphia, for an addition to plant at Oaks, Pa., to cost close to \$40,000.

Philadelphia Rapid Transit Co., 810 Dauphin Street, Philadelphia, has acquired about 81 acres at Front Street and Champlost Avenue, and will use portion of site for new car repair and reconditioning shops, car barns, terminal trackage, etc.

Hydraulic Tool Shop, Island Road and Botanic Avenue, Philadelphia, has awarded contract to H. H. Wehmeyer, Inc., 509 West Cumberland Street, for a one-story machine shop addition.

Board of Trustees, Drexel Institute, Thirty-second and Chestnut Streets, Philadelphia, is considering erection of a four-story mechanical engineering building, to cost approximately \$350,000 with equipment.

Ludington Philadelphia Flying Service, Inc., Atlantic Building, Philadelphia, has awarded general contract to Airport Equipment Co., Pennsylvania Building, for a one-story shop and hangar at Municipal Flying Field.

Philadelphia Electric Co., Tenth and Chestnut Streets, Philadelphia, in conjunction with Pennsylvania Power & Light Co., Allentown, Pa., has begun construction of new

power substation and switching station at Plymouth Meeting, Pa., covering 45 acres, for interchange of power; transmission line to carry 220,000 volts will be built. Entire project will cost upward of \$2,000,000. Philadelphia company will also complete new power substation at Westmoreland Street and Hunting Park Avenue, to cost more than \$350,000 with equipment.

Association of Motorbus Owners of Philadelphia and Vicinity, and Del-Bridge Bus Association, both represented by Harold S. Shertz, Liberty Building, Philadelphia, attorney, have acquired jointly a site at Thirteenth and Filbert Streets, and will have plans drawn for a multi-story bus terminal, service and repair garage building, to cost close to \$1,000,000 exclusive of land.

H. H. Ward Co., Inc., Chester, Pa., manufacturer of metal cornices, ceilings, etc., has awarded a general contract to William Provost Jr., Crozer Building, for a three-story addition, 60 x 140 ft., to cost approximately \$70,000 with equipment; Ballinger Co., 105 South Twelfth Street, Philadelphia, architect and engineer.

Bellanca Aircraft Corporation, Arlington, S. I., has taken out a charter under same name in Delaware, with capital of \$1,000,000, to construct and operate a plant at New Castle, about six miles from Wilmington, Del., where 350 acres has been purchased, with 1100 ft. frontage on Delaware River. Work will begin at once on initial units, to cost more than \$100,000 with equipment, designed largely for assembling. It is said that present plant at Arlington will be continued for time being. New company is headed by Giuseppe Bellanca. Henry B. and Frank V. duPont, Wilmington, are interested in organization.

Lawrence Township Board of Education, Lawrenceville, N. J., plans the installation of manual training equipment in a new junior high school to cost \$300,000, for which appropriation has been voted. P. E. Williams is supervising principal.

In connection with steam-operated electric generating plant at Churchtown, near Pennsville, N. J., to cost about \$7,000,000, American Gas & Electric Co., 30 Church Street, New York, plans construction of a steel tower transmission line to Atlantic City, for service to Atlantic City Electric Co., an affiliated organization, to cost close to \$1,000,000.

Lee Motor Co., Collegeville, Pa., recently formed by Lee Templeton and John Keyser, both of Norristown, Pa., will proceed with erection of one-story plant for manufacture of airplanes, with division for motor assembling, specializing in popular-priced units to sell for about \$1,500.

Pocono Metal Mfg. Co., East Stroudsburg, Pa., manufacturer of sheet metal stampings, etc., will rebuild portion of its plant recently destroyed by fire, with loss of \$25,000, including equipment.

Danville Structural Steel Co., Danville, Pa., recently acquired by Charles M. Schwab, head of Bethlehem Steel Corporation, Bethlehem, Pa., will be extended and improved under new ownership, with early resumption of production. Property comprises former Danville Structural Tubing Co. and Pennsylvania Brake Beam Works, consolidated last spring as the Danville Structural Steel Co. C. Clarence Weymouth will be in charge of operations. Carlton S. Wagner has been head of Danville company.

William Christensen Co., Inc., York, Pa., has been organized to fabricate structural steel, ornamental iron and brass and bronze products. It has taken over plant formerly operated by William Christensen and is not in market for any additional equipment.



## Buffalo

BUFFALO, Jan. 9.

**M**ANUAL training equipment will be installed by Board of Education, Genesee Building, Buffalo, in a two-story high school to cost close to \$1,000,000. F. J. & W. A. Kidd, 522 Franklin Street, architects.

Twin States Gas & Electric Co., Bennington, Vt., has plans for a new power plant in vicinity of Hoosick Falls, N. Y., reported to cost in excess of \$150,000, with transmission lines. Morton C. Tuttle Co., Park Square Building, Boston, is engineer.

Larrabee Truck Corporation, Binghamton, N. Y., recently formed has arranged for stock issue to total \$625,000, proceeds to be used for acquisition of Larrabee-Deyo Motor Truck Co., with local plant. New company has purchased former plant of Fiat Motor Co., Poughkeepsie, N. Y., and proposes early removal to that location. Company will operate its own body-manufacturing department.

Niagara, Lockport & Ontario Power Co., Buffalo, will take over and consolidate Western New York Utilities Co., operating at Batavia, Lockport, Medina and vicinity. Plans are under advisement for expansion, including transmission line construction.

Board of Education, Municipal Building, Rochester, N. Y., is said to be planning installation of manual training department in three-story Benjamin Franklin high school to cost \$2,000,000, for which bids are being asked on general contract until Feb. 23. Gordon & Kaelber, Hiram Sibley Building, are architects.

Coplan Steel Co., Ogdensburg, N. Y., is said to be arranging for a recapitalization of company, to be followed by early resumption of operations at the local mill and development of full capacity.

Board of School Trustees, District No. 1, 44 Main Street, Waterloo, N. Y., is considering installation of manual training equipment in two and three-story high school to cost \$390,000; Carl C. Ade, 89 East Avenue, Rochester, N. Y., architect.

J. A. Zurn Mfg. Co., Erie, Pa., has been formed under State laws by John A. Zurn, 221 West Twenty-first Street, to take over and expand company of same name, with plant at Fourteenth and German Streets for manufacture of plumbing equipment and supplies, gas burners, etc., with capital of \$300,000. Plans have been completed for an addition to cost close to \$250,000 with equipment, for which Wilbur Watson & Associates, 1614 Prospect Avenue, Cleveland, are architects and engineers. Officials of new company will include John A., M. A., E. F., and C. A. Zurn.

Kendall-Lamar Corporation, Potsdam, N. Y., has been organized to succeed Ira H. Kendall in manufacture of milk handling apparatus. Plant is already established and equipped.

The Rome Brass & Copper Co., Rome, N. Y., through action of its stockholders in authorizing the transfer of 30,000 shares of preferred stock, has concluded arrangements for the purchase of the Rome Mfg. Co., also at Rome. The sale had previously been sanctioned by the stockholders of the Rome Mfg. Co. Radiators are the chief product of the Rome Mfg. Co.

## Detroit

DETROIT, Jan. 9.

**B**IDS will soon be asked on general contract by Consolidated Paper Co., Monroe, Mich., for a four-story addition, to cost more than \$350,000 with equipment. Forster & Wernert, Nicholas Building, Toledo, Ohio, are architects and engineers.

Wolverine Tube Co., 1411 Central Avenue, Detroit, manufacturer of seamless copper and brass tubing, tubing parts, etc., is considering an expansion and improvement program to cost close to \$300,000.

Hudson Motor Car Co., 10617 Knodell Avenue, Detroit, is completing plans for a two-story addition, 100 x 500 ft., to cost more than \$300,000 with equipment. Albert Kahn, Inc., Marquette Building, is architect and engineer.

Board of Education, Rochester, Mich., plans installation of manual training equipment in a three-story high and grade school to cost \$225,000, for which bids will soon be asked on general contract. Van Leyon, Schilling & Keough, 3440 Cass Avenue, Detroit, are architects.

Michigan Carton Co., Battle Creek, Mich., manufacturer of cartons and other cardboard containers, has work under way on a one-story addition, 65 x 160 ft., to cost more than \$60,000 with equipment. M. J. Morehouse, 343 South Dearborn Street, Chicago, is architect.

Lansing Ice & Fuel Co., Lansing, Mich., is planning extensions and improvements in its ice-manufacturing division, to increase capacity close to 25 per cent.

Michigan Fertilizer Co., Lansing, Mich., has work under way on a new two-story unit, 166 x 416 ft., to cost upward

of \$65,000 with machinery. Following completion of this building company is considering another one-story unit for sulphuric acid production, to cost close to \$35,000.

Kewaunee Mfg. Co., Adrian, Mich., manufacturer of laboratory furniture and equipment, has awarded general contract to Robb & Ott, Adrian, for a one-story top addition to cost about \$25,000. Headquarters are at Kewaunee, Wis.

Federal Forge Co., Lansing, Mich., is planning extensions and betterments to increase capacity for production of larger forgings.

Swift Electric Welder Co., manufacturer of butt and spot welding machines, formerly at Fort Street and Mount Elliott Avenue, Detroit, has removed to Boulevard Temple Building, West Grand Boulevard and Twelfth Street.

## New England

BOSTON, Jan. 9.

**T**HE machine tool market in this territory so far this year has shown no signs of activity. Local houses apparently have accomplished more business than those in other New England States, yet few sales were reported the past week. New inquiries are about as scarce as orders, and manufacturers negotiating for metal-working equipment late in 1927 seem to be in no hurry to resume. Industry is slowly gathering momentum, however, and the trade looks for more activity before the end of the month.

Small tool sales are at a minimum, and it is reported that unused stocks in manufacturers' hands are small.

Angle Novelty Co., 209 Lunenburg Street, Leominster, Mass., contemplates a plant addition.

Welker Hoops, Inc., Middletown, Conn., has leased former plant of Westinghouse Electric & Mfg. Co., Middletown, and will manufacture an automobile gear shift.

What Cheer Chemical Co., Grotton Avenue, Pawtucket, R. I., has plans for a new rendering plant for which handling equipment will be required. Plans are private.

Laconia Car Co., Laconia, N. H., has under consideration manufacture of small wood and steel motor boats for use with outboard motors.

Plans are nearing completion for a three and six-story technical high school, 143 x 238 ft., at Fall River, Mass. Dr. William Pritchard is chairman of school committee.

Washburn Wire Co., Phillipsdale, R. I., has taken out permit for a one-story rod mill, 108 x 135 ft., for which general contract recently was let to Austin Co., reported to cost upward of \$100,000 with equipment.

American Oil Products Co., 230 Milk Street, Boston, has awarded general contract to W. F. Condon & Sons Co., 222 Putnam Avenue, Cambridge, Mass., for a one-story storage and distributing plant, with compounding department, at Somerville, Mass., 57 x 135 ft., to cost about \$60,000. Monks & Johnson, 99 Chauncy Street, Boston, are architects and engineers.

Watertown Electric Co., 7 Main Street, Watertown, Boston, has plans for a two-story repair shop, with service and garage facilities, to cost about \$65,000 with equipment.

Yale & Towne Mfg. Co., Stamford, Conn., manufacturer of builders' locks and hardware, holsts, etc., is having plans drawn for a three-story addition, to cost upward of \$200,000 with equipment. John Gamble Rogers, 154 East Forty-sixth Street, New York, is architect. Headquarters are at 9 East Fortieth Street, New York.

Cadillac Automobile Co. of Rhode Island, Providence, has taken over property at 128-36 Broadway, and plans construction of service, repair and sales building, to cost in excess of \$100,000 with equipment.

S. D. Warren & Co., 101 Milk Street, Boston, manufacturers of paper, have plans for a two-story addition to their mill at Westbrook, Me., to cost more than \$75,000 with equipment.

New England Power Co., Worcester, Mass., has applied for permission to issue stock in amount of \$1,700,000 for extensions and improvements, including completion of steel tower transmission line from Bellows Falls, Vt., to Pratt Junction, Mass., to cost \$650,000; similar power line from Ayer to Tewksbury, Mass., on which work has begun, to cost \$344,000; and completion of power substation at Pratt Junction, to cost \$476,000 with machinery.

Chapman Valve Mfg. Co., Indian Orchard, Mass., has arranged for increase in capital from \$1,500,000 to \$3,000,000, a portion of proceeds to be used for expansion.

Samuel Marshall, Inc., 43 Tremont Street, Boston, has plans for a one-story automobile service, repair and garage

building, 145 x 190 ft., at Medford, Mass., to cost approximately \$100,000 with equipment.

Manchester Tool Co., Manchester, Conn., has been organized to manufacture tools, particularly reamers. It is operating a factory at 161 Adams Street.

Phelps Foundry Co., Ansonia, Conn., has been formed to manufacture brass and bronze castings. Manufacturing contracts have not yet been made.

Chromium Process Co., Waterbury, Conn., has been organized to engage in electro-deposition of chromium. It is occupying Maxim Munitions plant at Derby, Conn., and is not in need of materials or equipment.

## Cincinnati

CINCINNATI, Jan. 9.

**M**ACHINE tool builders have booked a fair number of orders in the past 10 days, although many buyers are hesitant about purchasing tools for which they have recently inquired. Many companies report that outstanding quotations total an impressive sum and if they are successful in closing a reasonable percentage, production should go ahead on at least a moderate basis. Operations of local plants have not changed much in the last month and probably will continue during the next few weeks on a restricted working schedule.

Price advances still occupy attention of many manufacturers. Practically all planer companies have made upward revisions, and builders of turret lathes have followed the lead of a Cleveland maker in increasing list prices. This decision has resulted in some business being placed prior to enforcement of new schedules, which became effective a few days ago.

Norfolk & Western Railroad has added three boring mills and several other machines to its previous purchases, and the Texas & Pacific has bought a 5-ft. Right Line radial drill and a 2500-lb. single frame steam hammer. Magor Car Co. has taken a 53-in. heavy boring mill.

Newman Mfg. Co., 418 Elm Street, Cincinnati, manufacturer of ornamental bronze, has purchased plant of Safe Cabinet Co., Norwood. Buildings, with a total floor space of 146,000 sq. ft., will be remodeled and company will remove its offices and factory to new location.

American Laundry Machinery Co., Norwood Station, Cincinnati, has purchased Perry Laundry Machinery Co., Fairhaven, Mass., for \$500,000, and will consolidate with its organization. It is understood that Fairhaven plant will be maintained as a branch. Emmanuel J. Perry, heretofore head of acquired company, will become identified with purchasing interest. American company has recently acquired property at Seattle and plans erection of a new factory branch, storage and distributing plant at that place, to cost more than \$45,000.

Linde Air Products Co., 30 East Forty-second Street, New York, is reported contemplating new plant at Portsmouth, Ohio, to cost more than \$200,000 with machinery.

Perry Derrick Co., Dayton, Ky., manufacturer of derricks and kindred heavy machinery, has awarded general contract to C. A. Rawlings, Fort Thomas, Ky., for a three-story addition, to cost upward of \$75,000 with equipment. E. C. Landberg, 9 East Fourth Street, Newport, Ky., is architect.

Steam Appliance Transit Corporation, Lexington, Ky., recently formed by John R. Humphrey, 1109 Slashes Road, and associates, with capital of \$150,000, is contemplating erection of a one-story repair plant, to cost more than \$50,000 with equipment.

Stimpson Computing Scale Co., Breckenridge and Logan Streets, Louisville, will build an addition to cost approximately \$100,000 with equipment, and will soon take bids on general contract. O. D. Mock, 221 South Fifth Street, is architect.

City Council, Knoxville, Tenn., is considering construction of a municipal automobile service, repair and garage building, to cost upward of \$75,000 with equipment; City Engineering Department, City Hall, in charge.

International Aircraft Corporation, 909 Keith Building, Cincinnati, has plans for a new plant and remodeling and improving present buildings.

Knoxville Power & Light Co., Knoxville, Tenn., is said to be planning an expansion and improvement program to cost about \$1,500,000.

Thompson Grinder Co., Main and Zischler Streets, Springfield, Ohio, manufacturer of grinding equipment, etc., has awarded general contract to A. G. Samuelson for a one-story addition, to cost about \$20,000 with equipment. Lloyd Zeller, Springfield, architect.

F. & A. Air-Jack Mfg. Co., Dayton, Ohio, has been organized to manufacture patented air-jacks and has a factory in operation.

## St. Louis

ST. LOUIS, Jan. 9.

**B**IDS will be received by Board of Public Service, City Hall, St. Louis, until Feb. 1, for a one-story boiler plant for city sanitarium to cost \$150,000. A. A. Osburg, City Hall, is city engineer.

Charles G. Kruckemeyer Machine & Parts Co., Minerva Avenue, has awarded general contract to Truscon Steel Co., Syndicate Trust Building, for a one-story addition to its machine shop, 55 x 170 ft., to cost about \$35,000 with equipment.

Union Cooperage Co., Second and Penrose Streets, St. Louis, has plans for a two-story addition, 80 x 115 ft., to cost approximately \$50,000 with equipment.

Imperial Casket Co., 1415 St. Louis Avenue, Kansas City, Mo., has awarded general contract to W. K. Martin, Dwight Building, for a new two-story plant, to cost \$45,000 with equipment. W. J. Koch, Mutual Building, is architect.

Cape Silica Co., Cape Girardeau, Mo., is reported planning construction of two additional plant units, following completion of initial works now in progress. Present mill will cost close to \$75,000 with machinery.

Arkansas Cold Storage Co., Little Rock, Ark., has plans for a three-story cold storage and refrigerating plant, to cost \$85,000 with equipment.

City Council, Sterling, Kan., plans extensions and improvements in municipal electric light and power plant, with installation of additional equipment, to cost in excess of \$40,000. Burns & McDonnell Engineering Co., Interstate Building, Kansas City, Mo., is consulting engineer.

W. S. Merkle, 414 North Twelfth Boulevard, St. Louis, consulting engineer, has plans for a hydroelectric generating plant in south central part of State, for a company whose name is temporarily withheld. Transmission system will be built for service at Argyle, Meta, Freeburg, and vicinity. Entire project will cost upward of \$1,250,000.

Independent Plumbing & Heating Supply Co., 1119 Locust Street, has asked bids on general contract for a two-story storage and distributing plant with pipe cutting and threading shop and other departments, to cost \$130,000 with equipment. D. R. Harrison, Ambassador Building, is architect.

Western Refrigeration Co., Twenty-first and Campbell Streets, Kansas City, Mo., will erect a one-story ice-manufacturing and refrigerating plant, to cost close to \$50,000 with equipment. Ralph H. Oliver, 115 South Dearborn Street, Chicago, is architect.

Hemp & Co., 1945 South Vandeventer Avenue, St. Louis, manufacturers of heating equipment, have awarded general contract to Widmer Engineering Co., Laclede Gas Light Building, for a two-story and basement plant, and alterations and improvements in existing factory, to cost about \$45,000.

American Stove Co., Kingshighway and Daggett Street, St. Louis, has let general contract to Grone Construction Co., Syndicate Trust Building, for a one-story and basement addition, 88 x 120 ft., to cost close to \$40,000 with equipment.

## Cleveland

CLEVELAND, Jan. 9.

**M**ACHINE tool manufacturers and dealers have taken a fair amount of business in single machines since the start of the year and quite a little new inquiry has come out. There is more active demand for machines from the automotive industry from manufacturers of stampings, forgings and other parts. However, little business is coming from automobile manufacturers, as is indicated by reports that the market in the Michigan territory continues dull.

Mullins Mfg. Corporation, Salem, Ohio, which has taken a large order for automobile stampings, has purchased 15 presses, including two double-crank toggle presses, amounting to approximately \$100,000. Timken Roller Bearing Co., Canton, Ohio, the past week purchased three engine lathes. Firestone Tire & Rubber Co., Akron, bought a 24-in. shaper and is figuring on quite a list of equipment for its new Pacific Coast plant. Goodrich Tire & Rubber Co., Akron, is also reported to be securing estimates for equipment for a Western plant. Increased activity of drop forge shops is reflected in some demand for die sinking machines.

Plans have been filed by E. F. Hauserman Co., 6810 Grant Avenue, Cleveland, manufacturer of metal partitions and kindred metal goods, for rebuilding its two-story plant recently damaged by fire, to be 165 x 200 ft., to cost \$65,000 with equipment.

Akron-Neon Co., Akron, Ohio, recently organized, is planning operation of a local factory for production of special gas-electric signs, to cost about \$20,000.



Willing Carriage Works, Inc., 102 North Third Street, Marietta, Ohio, will erect a two-story addition, 63 x 68 ft., for production of automobile and motor truck bodies, to cost approximately \$25,000.

Timken Roller Bearing Co., Canton, Ohio, has approved plans for a one-story addition, to cost \$300,000 with machinery.

Beans Foundry Co., Martins Ferry, Ohio, is completing an addition for production of steel castings, designed to double the present capacity. Foundry, heretofore, has been devoted exclusively to iron castings.

Universal Portland Cement Co., 210 South La Salle Street, Chicago, is reported to have plans under way for a new mill in Cuyahoga River Valley section, vicinity of Cleveland, to cost upward of \$1,750,000 with equipment.

Carbon Sales Division of National Carbon Co., Inc., Cleveland, has opened sales offices in connection with its brush service plants at 357 West Thirty-sixth Street, New York; 551 West Monroe Street, Chicago; 3 Barker Place, Pittsburgh, and 1824 Ninth Avenue, North, Birmingham.

Gustav Schaefer Wagon Co., 4180 Lorain Avenue, Cleveland, will rebuild portion of plant recently destroyed by fire, with loss reported more than \$250,000 including equipment.

## South Atlantic States

BALTIMORE, Jan. 9.

**A**N expansion and improvement program for power plants, transmission lines and other electric facilities is being planned by Consolidated Gas, Electric Light & Power Co., Lexington Building, Baltimore. Company is interested in new hydroelectric generating plant to be constructed on Susquehanna River by Pennsylvania Water & Power Co., Holtwood, Pa., on site south of last noted place, to cost close to \$20,000,000 with transmission system. J. E. Aldred is chairman of board of Consolidated company.

American Oil Co., American Building, Baltimore, has plans for a two-story storage and distributing plant for lubricating oils in the Curtis Bay district, to cost approximately \$40,000 with equipment.

Carolina Cement Co., care of J. A. Acker, chief engineer of New Egyptian Portland Cement Co., Port Huron, Mich., recently formed by Mr. Acker and associates, has arranged for purchase of property on Trent River, near New Bern, N. C., for a cement mill, to cost close to \$2,500,000 with equipment. It is purposed to have one unit ready for service next fall.

Purchase division, Bureau of Standards, Washington, is asking bids until Jan. 20 for two 500-hp. watertube boilers to operate at 200 lb. pressure, with superheaters and soot blowers, for new power plant.

Board of Awards, office of city register, Baltimore, is taking bids until Jan. 18 for a one-story equipment storage and distributing plant, with repair shop. C. H. Osborne is chief of bureau of buildings.

Central Chemical Co., Hagerstown, Md., manufacturer of fertilizers, will erect a new unit at its branch plant at Money Point, near Norfolk, Va., to cost in excess of \$100,000 with machinery.

Lavonia Cotton Mfg. Co., Lavonia, Ga., has completed plans for complete electrification of its mill, to cost close to \$50,000 with equipment. J. E. Sirrine & Co., Greenville, S. C., are engineers.

Savannah River Lumber Co., Savannah Bank & Trust Building, Savannah, Ga., has plans for a new one-story unit at its mills at Port Wentworth, Ga., to be used largely for production of stock for automobile bodies, to cost \$250,000 with machinery. Installation will include hand-saws, surfacers, cut-offs, tenoners and other wood-working machinery. It is also proposed to install steam-electric power plant, with two watertube boilers, generators and accessory apparatus.

Lexington Water Power Co., Columbia, S. C., has begun work on a hydroelectric power development on Saluda River, about 10 miles from city, to develop initial capacity of 130,000 kw. and ultimate output of more than 200,000 kw. A transmission line will be built for service to Broad River Power Co., an affiliated organization. It is purposed to have first portion of plant ready for service in about 18 months. Entire project is estimated to cost \$20,000,000. Company is operated by General Gas & Electric Corporation, 50 Pine Street, New York.

Standard Metal Weather Strip Co., 1511 Gullford Avenue, Baltimore, has acquired three buildings on 1½ acres near Broadway and line of Pennsylvania Railroad, with main two-story structure, 52 x 69 ft., and will remodel for a new plant. Present works will be removed to new location and considerable additional machinery installed.

E. H. Jacobs Mfg. Co., Danielson, Conn., manufacturer of textile loom equipment, plans enlargement in its branch

plant at Charlotte, N. C., and will take over additional space for production facilities.

Bureau of Supplies and Accounts, Navy Department, Washington, is asking bids until Jan. 17 for 38,000 ft. steel wire, 6370 lb. copper wire, and 39,000 ft. telephone cable, for Brooklyn Navy Yard, schedule 8290; also for turbine cylinders for Mare Island, Puget Sound and Brooklyn Navy yards, schedule 8289.

Carolina Power & Light Co., Raleigh, N. C., plans extensions and improvements in power plant and system in vicinity of Asheville, N. C., to cost about \$200,000 with equipment.

Electric City Ice Co., Anderson, S. C., recently formed by J. M. King, Seneca, S. C., and associates, plans construction of an electrically operated ice-manufacturing plant to cost about \$45,000.

## Chicago

CHICAGO, Jan. 9.

**S**ALES resistance is less marked and machine tool sales are more numerous than in the closing days of 1927. Both inquiry and purchases, however, are scattered. Railroads in the Chicago area give no indication of submitting lists to the trade. In the St. Louis district orders are being placed against the requirements of the Missouri Pacific and the Texas & Pacific. Studebaker Corporation has closed for a few items for use in the production of a new eight-cylinder engine. A. O. Smith Corporation, Milwaukee, will buy a few small machine tools and is indicating interest in several large machines. Marmon Motor Car Co., Indianapolis, Ind., is disposing of 800 used tools through a local dealer.

Naylor Spiral Pipe Co., 9145 Chauncey Street, Chicago, will build an addition, 71 x 200 ft., to cost \$35,000.

Simplex Mfg. Co., 213 West Austin Boulevard, Chicago, manufacturers of roof flashing, will erect addition, 50 x 107 ft., to cost \$14,000.

Plant of Belleville Enameling & Stamping Co., Belleville, Ill., was recently damaged by fire, loss being estimated at \$200,000.

Capital Plumbing & Heating Supply Co., Chicago, has acquired property at Clybourn and Chester Avenues for a new two-story plant, to cost close to \$100,000 with equipment.

K. & S. Mfg. Co., 1333 South Cicero Avenue, Chicago, operating a wood-turning plant, has engaged Joseph J. Novy, 2434 South Ridgeway Avenue, architect, to prepare plans for a two-story addition, to cost more than \$100,000 with machinery.

Cooper Mfg. Co., Marshalltown, Iowa, manufacturer of automobile parts and equipment, will rebuild portion of plant recently destroyed by fire, with loss estimated upward of \$75,000 including equipment.

Woolery Machine Co., Como, and Twenty-ninth Avenues, Minneapolis, Minn., manufacturer of railroad hand cars, inspection cars and other railroad equipment, has plans for a one-story addition, 50 x 170 ft., to cost about \$35,000, and will begin work in spring. It is planned also to build a one-story warehouse and distributing unit. Jensen & Foss, Essex Building, are architects.

Stickney & Co., Rockford, Ill., recently organized by Charles A. Stickney, 848 Haskell Avenue, and associates, are planning early operation of a local plant for manufacture of refrigerating equipment, water-softening apparatus, etc.

Central States Power & Light Co., Iowa Falls, Iowa, will begin work on an addition to its local steam-operated electric generating plant, to cost approximately \$250,000 with equipment. Extensions will be made in transmission lines.

Northern Pacific Railroad Co., St. Paul, Minn., is reported planning a new sand and gravel-washing plant at Horton, Mont., to cost \$75,000 with equipment. Pioneer Sand & Gravel Co., Horton, is interested in project and will be active in construction and operation of unit.

Continental Ice Co., Savanna, Ill., will proceed with a new ice-manufacturing plant, to cost more than \$300,000 with equipment.

Fort Dodge Foundry, Fort Dodge, Iowa, which has been idle two years, has been reorganized and reopened as Fort Dodge Steel & Foundry Co., under management of T. C. Hicks, formerly superintendent Fort Dodge Steel & Culvert Co. It will specialize in iron, semi-steel and non-ferrous castings, all types of grates, machinery castings and some alloy products. New equipment has been installed.

American Nut & Lock Co., 709-711 South Washington Street, Decatur, Ill., has been incorporated with \$100,000 capital by Lester L. Barton, William E. Janssen and Henry

W. Orberg to manufacture a locknut invented by J. H. Fernferon of Sweden. Production will begin in two months.

Herman Nelson Corporation, Moline, Ill., manufacturer of Univent and Unit heater products, has let contract for a one-story addition, 120 x 126 ft., with two-story section, 56 x 120 ft., to cost about \$43,000.

T. L. Knudtson Engineering Co., Chicago, has established headquarters at 1624 Milwaukee Avenue, and will maintain warehouse with stock of laundry machinery, boilers, engines, etc. It specializes in designing and equipping laundries and engages in power plant engineering.

## Indiana

INDIANAPOLIS, Jan. 9.

**C**ONTRACT has been let by Crescent Stove Works, Park Street and Belt Line Railroad, Evansville, Ind., to E. C. Dubber, 1104 East Columbia Street, for a new one-story and basement foundry, to cost about \$24,000 with equipment.

Citizens Gas Co., Majestic Building, Indianapolis, is considering extensions and improvements in its artificial gas works, including installation of additional equipment, to cost \$300,000. It is expected to begin work in spring.

E. A. Barger, 325 West Sixth Street, Gary, Ind., has plans for a two-story automobile service, repair and garage building, 125 x 125 ft., to cost approximately \$100,000 with equipment.

Indiana Electric Corporation, 2 West Washington Street, Indianapolis, has arranged for a bond issue of \$2,600,000, a portion of fund to be used for extensions and improvements, including transmission lines.

Air-More Products Co., Indianapolis, has been organized with capital of \$100,000 to take over and consolidate Indiana Dry Cleaning Equipment Co., manufacturer of dry-cleaning machinery, exhaust fans, air compressors, etc., and Brandon Air Compressor Co., manufacturer of gasoline filling station equipment, paint spray machines, air compressors, etc., and will occupy plant of the first noted company at 3402 Northwestern Avenue, where production will be concentrated. New company will continue same line of production and will carry out an expansion program. Fred A. Sublette is president of new organization; John E. Brandon, vice-president; and Cleo McLean, engineer and production manager.

Gary-Chesterton Chemical Co., Chesterton, Ind., is said to have plans for rebuilding its plant destroyed by fire several weeks ago, with loss in excess of \$90,000 including equipment.

Board of Education, Mount Vernon, Ind., is said to be planning installation of manual training equipment in a two-story high school to cost \$200,000, for which bids will soon be asked on general contract. N. S. Spencer & Son, 180 North Michigan Boulevard, Chicago, are architects.

Chrysler Motor Corporation, Detroit, will proceed with a one-story addition, 100 x 300 ft., at its branch plant at Newcastle, Ind., to be equipped as a new die shop. Present department will be remodeled for general production. Extensions will also be made in power station at plant. Entire program will cost more than \$85,000. Frank D. Brebner is plant manager.

Muncie Cap & Set Screw Co., Muncie, Ind., has changed its name to Acme Machine Products Co.

Chromolite Corporation, 403 West Michigan Street, Indianapolis, has been organized to do chromium plating. Factory has been acquired and production will begin within six weeks.

## Gulf States

BIRMINGHAM, Jan. 9.

**P**LANs are being completed by Fort Worth Gas Co., Fort Worth, Tex., for a one-story equipment storage and distributing plant, with machine shop, to cost upward of \$100,000 with equipment.

Muldoon Fullers' Earth Co., First National Bank Building, Houston, Tex., is planning installation of equipment for development of Fullers' earth properties at Muldoon, Tex., where more than 500 acres has been secured. The initial plant will include loading and mining machinery, grinding mill, drying plant, conveying and sacking equipment, etc.

Texas Central Power Co., Frost National Bank Building, San Antonio, Tex., is said to be planning construction of a new power house in vicinity of Brownsville, Tex., to cost about \$45,000 with equipment.

Fire, Dec. 31, destroyed the peanut oil manufacturing plant, peanut butter mill, peanut-shelling mill and other portions of plant of Woldert Pecan Co., Tyler, Tex., with loss reported at \$150,000 with equipment.

Birmingham Boiler & Engine Co., 3001 North Seventh Avenue, Birmingham, has taken out permit for a one-story

addition, 90 x 140 ft., to be equipped as a steel fabricating works.

Central Florida Light & Power Co., Dunnellon, Fla., is reported planning construction of a new ice manufacturing plant at Inverness, Fla., to cost more than \$40,000 with equipment.

Ovens, power equipment, conveying machinery will be installed in a one and two-story plant, 100 x 200 ft., to be constructed by McGough Bakeries Corporation, 731 North Twenty-sixth Street, Birmingham, to cost \$200,000.

Casner-Chevrolet Co., 400 East Yandell Boulevard, El Paso, Tex., local representative for Chevrolet automobile, has plans for a two-story service, repair and sales building, 115 x 120 ft., to cost close to \$100,000 with equipment. Trost & Trost, Two-Republic Building, are architects.

San Antonio Public Service Co., San Antonio, Tex., is completing plans for expansion at its Comal steam-operated electric power plant, near New Braunfels, Tex., including installation of a 30,000-kw. turbo-generator and accessory equipment, to cost upward of \$500,000, including transmission line construction. It is understood that contracts for equipment will be placed soon.

Roxana Petroleum Corporation, Shell Building, St. Louis, has taken an option on 600 acres at Houston, Tex., and is reported considering a new oil refinery at that location.

Gulf States Utilities Co., Beaumont, Tex., is arranging an expansion and improvement program to cost close to \$1,200,000, including power stations, transmission lines, gas plants and ice-manufacturing plants. It is purposed to make extensions in the ice-manufacturing plant at Orange, Tex., as well as enlarge electric power plant at that place.

Rockwood Stone Co., Rockwood, Ala., will soon begin erection of a new limestone finishing mill, one story, 160 x 400 ft., to cost close to \$125,000 with machinery. Leo F. Caproni, 1056 Chapel Street, New Haven, Conn., is consulting engineer.

National Specialties Corporation, 908 Republic Bank Building, Dallas, Tex., recently organized, plans operation of a local factory for manufacture of electric flashing signs.

Bastrop Ice & Storage Co., Cypress Street, Bastrop, La., has approved plans for a one-story addition to its ice manufacturing plant, 90 x 115 ft., to cost \$45,000 with equipment.

Graver Corporation, East Chicago, Ind., has established Texas headquarters at 201 Petroleum Building, Fort Worth, and has discontinued office at Houston.

## Milwaukee

MILWAUKEE, Jan. 9.

**W**HILE expectations of improvement in demand for machine tools have not been realized much past the stage of more active inquiry as yet, indications point toward early betterment of sales. The automotive industries are particularly prominent in inquiries now being put out to cover requirements within the next three to four months. Sales so far this year have been of satisfactory volume, and consist largely of single items to a wide variety of shops. Sentiment is more hopeful than perhaps for five or six months past.

Worden-Allen Co., Milwaukee, manufacturer of structural steel and general contractor and consulting engineer, has an expansion program which contemplates doubling size and output of its works at Capitol Drive and Port Washington Road. Details are not yet available, but a new issue of \$600,000 of preferred stock has been authorized to supplement the present capitalization of \$600,000 common stock. Eugene W. Krueger is president, and E. F. Zuleger, general manager.

Simmons Co., Kenosha, Wis., manufacturer of steel beds, furniture, etc., has started work on an addition costing \$250,000. Branch works at Richmond, Va., are being consolidated with main works, and purchasing department, which was moved to Chicago several years ago, is being returned to headquarters in Kenosha plant.

Founders Sand & Supply Co., Detroit, Mich., has purchased 52 acres of limestone deposits at Sturgeon Bay, Wis., and will establish plant for quarrying and shipping directly by Great Lakes vessels. Investment of approximately \$250,000 is contemplated.

Fraser Co., 667 East Water Street, Milwaukee, designer and builder of cereal mills, elevators, etc., has general contract for an \$80,000 addition to plant of Commercial Milling Co., 203 Randolph Street, Detroit, Mich. Bids for a five-story extension are being taken until Jan. 20.

Northern Conveyor Co., Janesville, Wis., has postponed indefinitely construction of an addition to cost \$40,000; plans by W. H. Blair, local architect.

Quality Aluminum Co., 405 Lincoln Avenue, Waukesha,



Wis., is taking bids for a foundry addition; cost is not revealed.

Common Council, Neenah, Wis., has appropriated \$30,000 to municipal waterworks commission for purchase of a new power unit, generator, pump and motor to replace obsolete steam pumping and boiler equipment. Specifications will be issued about Jan. 23; H. S. Zemlock, city clerk.

Board of Education, Watertown, Wis., is asking bids until Feb. 8 for a two-story addition, 50 x 167 ft., to Junior High School. Plans are by Edward Tough, architect, Madison, Wis. Dr. F. F. Schlueter is president of board.

Common Council, Wauwatosa, Wis., suburb of Milwaukee, has approved bond issue of \$120,000 for construction of an additional water supply unit. Plans are being prepared by J. E. Lowther, city engineer, and call for a deep well, pumping plant and elevated steel tank and tower. Bids probably will be asked early in March; A. V. Brigham, city clerk.

Tools of Jolite, Inc., Milwaukee, has been organized by L. C. Mayhew, 327 Prospect Avenue, and associates, to manufacture machinery, tools, dies, implements, etc., employing a special metal. Plans are being made for establishment of a shop and purchase of equipment.

War Department, Washington, has ordered construction of a waterworks system at Camp Williams, formerly Camp Douglas, Wis., at a cost of \$70,000. Plans for well, pumping plant, steel storage tank, etc., are being drawn by Maj. H. C. Hengel, State military architect, 445 Milwaukee Street, Milwaukee. Adj. Gen. Ralph M. Immell, State Capitol, Madison, Wis., is in charge.

Wisconsin Iron & Wire Works, 1660 Booth Street, Milwaukee, has changed its name to Wisconsin Ornamental Iron & Bronze Co.

## Pittsburgh

PITTSBURGH, Jan. 9.

**F**IRE, Dec. 31, destroyed the building occupied jointly by H. P. Gazzam Machine Co., and Stewart-Thomas Foundry Co., 3200 Penn Avenue, Pittsburgh, spreading to adjoining plant of General Bronze Co., with total loss in excess of \$75,000 with equipment.

Fokker Aircraft Corporation, Glendale, W. Va., headed by Anthony H. G. Fokker and Major Lorillard Spencer of Atlantic Aircraft Corporation, Hasbrouck Heights, has awarded general contract to R. R. Kitchen & Co., Wheeling, W. Va., for initial units of its plant at Glendale, totaling about 100,000 sq. ft. of floor space, to cost close to \$300,000 with equipment. C. W. Bates, 77 Twelfth Street, Wheeling, is architect.

Carbide & Carbon Chemical Corporation, South Charleston, W. Va., manufacturer of industrial gases, oxygen, etc., is said to be planning to rebuild portion of plant destroyed by fire Jan. 1, with loss upward of \$350,000 including equipment. Headquarters are at 30 East Forty-second Street, New York.

Mayer Body Corporation, 6461 Frankstown Avenue, Pittsburgh, is having plans drawn for a one-story addition to its automobile body works, to cost more than \$25,000.

Rochester & Pittsburgh Coal & Iron Co., Indiana, Pa., has been formed with capital of \$17,243,000 to take over and consolidate local company of same name and Jefferson & Clearfield Coal & Iron Co., Brookville, Pa., with properties in Jefferson and Clearfield Counties. Company will operate 12 mines and plans expansion. L. W. Robinson is chairman of board, and B. M. Clark, Indiana, president.

Pittsburgh & Lake Erie Railroad Co., Pittsburgh, has plans for a one-story car repair shop at Woodlawn, Pa., to cost approximately \$45,000 with equipment; A. R. Raymer, Smithfield and Carson Streets, Pittsburgh chief engineer.

## Pacific Coast

SAN FRANCISCO, Jan. 4.

**P**LANs have been filed by Southern California Edison Co., Los Angeles, for a one-story power and switching substation near Irvine, Cal., to cost \$110,000 with equipment.

Kimball Pump Co., 1010 East Sixty-second Street, Los Angeles, has awarded general contract to Austin Co. of California, Inc., for a one-story addition.

Doheny-Stone Drill Corporation, Los Angeles, manufacturer of oil drilling equipment, tools, etc., has awarded contract to Llewellyn Iron Works for initial unit of plant at Torrance, to be one story, 180 x 360 ft., to cost about \$225,000 with equipment. An outdoor crane runway will be installed, with adjoining smaller unit, 60 x 90 ft. A complete heat-treating division will be provided. Hamm, Grant & Bruner, Ferguson Building, Los Angeles, are architects.

Pacific Fruit Express Co., 65 Market Street, San Francisco, subsidiary of Southern Pacific Co., has plans for a

one-story ice-manufacturing and pre-cooling plant, 165 x 440 ft., at Fresno, Cal., with car-icing platform 3300 ft. long, to cost close to \$1,000,000 with equipment; engineering department of company in charge.

Crane Creek Lumber Co., Lakeview, Ore., Frank Boutin, manager, is planning construction of a new lumber and saw mill in vicinity of Alturas, Modoc County, Cal., with logging and transportation facilities, to cost \$400,000 with machinery.

Provo Ice & Cold Storage Co., Provo, Utah, is considering an addition to its cold storage and refrigerating plant, to cost \$50,000 with equipment.

Spokane Lead & Zinc Co., Spokane, Wash., is completing plans for a hydroelectric power development on Clarks Fork, branch of Columbia River, near Metalline Falls, Wash., to provide capacity of 50,000 hp. for mining operations in that section. A transmission line will be built. Entire project is reported to cost more than \$3,500,000.

Karpen & Brothers, 636 West Twenty-second Street, Chicago, and Los Angeles, manufacturers of furniture, have plans for a four-story factory at Huntington Park, near Los Angeles, to cost approximately \$275,000 with equipment. Hamm, Grant & Bruner, Ferguson Building, Los Angeles, are architects.

F. A. Fullerton, business manager, Milton, Ore., is asking bids until Jan. 23 for one 1000-kw. electric generator, direct-connected to hydraulic turbine and exciter, for a municipal hydroelectric power project, together with governor, gate valves, and accessory equipment. Bids for other equipment will be called later. John H. Lewis, Railway Exchange Building, Portland, is engineer.

Tom G. Taylor Co., Portland, Ore., plans construction of a 120-ton pulp and paper mill in Georgetown district, Seattle, at estimated cost of \$3,000,000.

J. A. Roake, Oregon City Foundry, Oregon City, Ore., has purchased property near Canemah Park and will erect a foundry and machine shop, each 48 x 65 ft. Fire partially destroyed the former plant.

Craig Shipbuilding Co., Long Beach, Cal., is having plans prepared for a new foundry, 88 x 97 ft., to replace a building recently destroyed by fire.

Cutler-Hammer Mfg. Co., Milwaukee, manufacturer of electric motor control apparatus and kindred equipment, has opened sales offices at 970 Folsom Street, San Francisco; 229 Boyd Street, Los Angeles, and 2203 First Avenue South, Seattle. Complete stocks of company's standard items will be carried in all offices.

Multnomah Iron Works, Thirtieth and Nicolai Streets, Portland, Ore., has been organized to manufacture drag saws, concrete mixers and electric washing machines. It does not operate a foundry in connection with plant.

## Canada

TORONTO, Jan. 9.

**S**ALES of machine tools the past week were comparatively light, but new interest and inquiries were more general and leading builders and dealers look for a continuation of the good demand that prevailed the past year. Considerable buying is yet to be done by the automotive industry of this country for additions under way. Tool buying for mining operations was a strong feature of the 1927 market, and, according to indications, this will continue for some time. The Canadian National Railways have not completed their purchases for the Point St. Charles shops at Montreal, and lists from this quarter are expected at an early date.

Canadian Salt Co., Sandwich, Ont., will build an addition to cost approximately \$300,000; architect not yet appointed.

Public Utilities Commission, Palmerston, Ont., is planning installation of several electrically driven water pumps.

A. E. Wheeler, New York, consulting engineer, is preparing plans for erection of a concentrator, with capacity of 500 tons, at Rouyn, Que., for Noranda Mines. Contracts have been awarded to Canadian Bridge Co., Walkerville, for fabricating and erection of steel frame-work, and contract for a part of machinery has also been let.

Chrysler Corporation of Canada, Ltd., Windsor, Ont., has awarded contracts in connection with additions to its plant to cost \$200,000. A two-story reinforced concrete building, 101 x 400 ft., is so designed that two additional stories can be added later. Border Construction Co., Walkerville, Ont., is general contractor. Pennington & Boyde, architects and engineers.

Anglo Newfoundland Development Co., Ltd., Grand Falls,

Newfoundland, has started work on a new power development plant with capacity of approximately 100,000 hp.

Department of Public Works, Ottawa, Ont., S. E. O'Brien, secretary, will start work soon on an addition to Esquimalt Dry Dock, Esquimalt, B. C.

## Foreign

**C**APACITY of works in Chile of Anglo-Chilean Consolidated Nitrate Corporation, 120 Broadway, New York, will be increased from 300,000 to 500,000 tons per annum, at a cost of more than \$1,000,000. E. A. Cappelen Smith, an official of company, has left for plant site to supervise expansion.

Cork Industrial Development Association, Cork, Ireland, in conjunction with Cork County Committee of Agriculture, plans construction of two new beet sugar mills in different parts of county, one plant to be under direction of each organization. Projects will cost close to \$1,750,000 with machinery. Information at office of Bureau of Foreign and Domestic Commerce, Washington, reference England No. 60182; also, at American Consulate, London, England, William L. Cooper, commercial attaché.

Tokio Electric Light Co., Tokio, Japan, has been formed with capital of 407,140,000 yen (about \$203,570,000) to take over company of same name and Tokio Electric Power Companies. New organization will carry out an expansion and improvement program, including power plants and transmission systems.

Ministry of Labor, Prague, Czechoslovakia, is considering additional terminal facilities at harbor of Bratislava, project to be carried out in conjunction with Bratislava Chamber of Commerce. It is proposed to form a joint stock company with capital of 4,000,000 crowns (about \$120,000), to handle enterprise, which will include a two-story and basement

warehouse terminal, about 89 x 310 ft., with travelling crane, elevating, conveying and other equipment. American Consulate, Prague, Karl L. Rankin, assistant trade commissioner, has information regarding project.

A company at Rotterdam, Netherlands, has obtained a concession to construct and operate an electric generating plant at Menado, Celebes, Netherland East Indies. Information at office of Bureau of Foreign and Domestic Commerce, Washington, reference Netherland East Indies No. 35-X; also at American Consulate, Batavia, Donald Renshaw, trade commissioner.

Aalborg Portland Cement Works, Jutland, Denmark, is arranging for increase in capital to 4,800,000 kroner (about \$1,250,000), a portion of fund to be used for expansion and improvements.

The Dominican Government plans construction of a breakwater approximately 3000 ft. long and other harbor improvements for port of Santo Domingo, also construction of harbor improvements to ports of Puerto Plata and San Pedro de Macoris, for which an appropriation of \$2,000,000 has been made. J. G. White Engineering Corporation, New York, is in charge.

The Osaka Ventilating Co., Itachibori, Japan, is planning to build a new shop for the manufacture of fans, blowers and other ventilating equipment and is desirous of receiving literature and prices on machines for riveting, welding and sheet metal working. H. Ohta is manager.

Tuthill & Co., Inc., 225 Broadway, New York, has been appointed general agent in North America for Mansfeldscher Metallhandel, Berlin, and Mansfeld Mining Co., Eisleben, Germany. Mansfeld companies produce and refine copper, lead and silver and mine coal and potash. Company also manufactures semi-finished and finished copper, brass and silver materials and operates non-ferrous rolling mills in Germany.

## NEW TRADE PUBLICATIONS

**Spur Gears.**—Boston Gear Works, Norfolk Downs, Mass. Leaflet 7-27, covering hardened and ground tooth spur gears for heavy duty. The pinions are generated ground by a special process and warping due to hardening is said to be eliminated by the hardening process.

**Motor Drive Equipment.**—Allis-Chalmers Mfg. Co., Milwaukee. Bulletin 1140, devoted to reversing motor planer drive constant voltage equipment. Advantages of direct-connected motor drive are given as increased output, decreased power consumption, wide range of speeds, ease of control and lower maintenance.

**Reinforcing Lath.**—Milwaukee Corrugating Co., Milwaukee. Catalog 20-D, being a technical data book for architects, engineers and contractors, which features the company's  $\frac{3}{4}$ -in. stay-rib No. 3 reinforcing lath.

**Mechanical Sledges.**—Chambersburg Engineering Co., Chambersburg, Pa. Leaflet describing the Chambersburg mechanical sledge for all sorts of hand forging in foundries, forge shops, machine shops, repair shops, mines, etc.

**Fabricated Steel.**—R. C. Mahon Co., Detroit. Catalog of 24 pages illustrating industrial and commercial buildings erected by the company and factory equipment, including low-temperature drying ovens, spray booths, shaving exhaust systems and special factory handling equipment. The Mahon steel roof deck, complete roofing and roof maintenance service and fire doors are described and illustrated.

**Electrical Products.**—Crouse-Hinds Co., Syracuse, N. Y. Bulletin 2102 dealing with the company's various types of flexible fixture hangers; folder 52, describing the new Obround conduit in which the cover opening is unobstructed, and advance sheets 94, 95 and 96, devoted to safety hand lamps and fixture hanging conduits.

**Materials Handling Equipment.**—American MonoRail Co., Cleveland. Catalog A, 64 pages, covering overhead conveying equipment, including monorail systems, switches, trolleys, curves, turn-tables, transfer cranes, chain hoists, monorail lifts, electric hoists and various parts and accessories.

**Electrical Spraying.**—Electric Sprayit Co., 217 Iron Street, Detroit. Folders describing the operation of a hand spraying device operated by a small electric motor, which drives a fan at high speed and atomizes the liquid or powder being sprayed.

**Motor Starting Switches.**—Allen-Bradley Co., Milwau-

kee. Leaflet, dealing briefly with the type J-1552 across-the-line motor starting switch. There are several photographs and descriptions of varied installations.

**Air-Operated Chucks.**—Logansport Machine Co., Logansport, Ind. First of a series of three circulars showing the application of the company's air-operated chucks. The chucks are pictured in operation on various types of machine tools.

**Adamite Dies.**—Mackintosh-Hemphill Co., Pittsburgh. Brief bulletin devoted to the application of adamite dies for pressed metal work. Special emphasis is given to the use of these dies for cold forming in a considerable variety of metal works.

**Pressed Metal Products.**—Youngstown Pressed Steel Co., Warren, Ohio. Bulletin describing factory equipment manufactured by the company. Of particular interest are corrugated pressed steel platforms, solid and sectional boxes for transport work and tote pans.

**Water Hammer Drills.**—Sullivan Machinery Co., 122 South Michigan Avenue, Chicago. Bulletin 81-M, describing the Sullivan T-3 water hammer drill, a late development in a drifting or tripod drill for mining, quarrying and contracting service. The machine will drill 14-ft. holes for 1 $\frac{1}{4}$ -in. powder readily and will go deeper under favorable conditions.

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